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ABSTRACT

This document presents a model curriculum for use by trainers presenting training course in assessing and reporting dust and debris from deteriorated lead-based paint. The course, which was developed by the U.S. Environmental Protection Agency, is intended for use with housing quality standard inspectors, rehabilitation specialists, home inspectors, and others involved in evaluating dwelling units. The guide begins with a trainer overview that includes the following items: (1) an overview of the model curriculum's objectives and intended audience; (2) an overview of the learning modules, course schedule, and course materials; and (3) a trainer's checklist. Each module contains the following elements: (1) the time required for the module; (2) module objectives; and (3) detailed guidelines for presenting the module, using the accompanying audiovisual aids, conducting a class discussion, and summarizing the module's key points. The module topics are as follows: (1) background information on lead-based paint hazards; (2) visual assessment; (3) dust wipe sampling; (4) selecting a laboratory and interpreting results; (5) putting the skills together; and (6) writing and delivering the report. The following items are appended: regulatory guidance; a blank clearance examination report form and handouts, a model clearance examination report; a glossary; answers to exercises; and a sample of the student manual. (MN)

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United States Environmental Protection Agency

Office of Pollution Prevention and Toxics

EPA 747-B-00-002
July 2000

LEAD SAMPLING TECHNICIAN
TRAINING COURSE

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TRAINER MANUAL

Program Assessment and Outreach Branch
National Chemicals Division
Office of Pollution Prevention and Toxics
Office of Prevention, Pesticides, and Toxic Substances
United States Environmental Protection Agency
Washington DC 20460

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CONTRIBUTING ORGANIZATIONS

This training manual was funded by the United States Environmental Protection Agency (EPA). The manual was managed by EPA and developed by ICF Consulting, under contract to EPA. Each organization's responsibilities are listed below.

ICF Consulting

ICF Consulting worked with EPA to develop training materials for the lead sampling technician course, including a student manual, trainer manual, and a field guide. ICF Consulting was assisted by Georgia Tech Research Institute, the National Center for Lead-Safe Housing, and Community Resources.

United States Environmental Protection Agency

EPA was responsible for managing the manual development, providing technical oversight, guidance and directions, and overseeing the peer review and finalization of the manual. Ms. Darlene Watford was the Work Assignment Manager for this task and the EPA Project Officer was Mr. Samuel F. Brown.

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Liz Hernandez, Cleveland Housing Network
Stevenson Weitz, HUD Office of Lead Hazard Control
Jim Yannarelly, St. Paul – Ramsey County, Department of Public Health

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Sample of Student Manual

This Model Curriculum

The U.S. Environmental Protection Agency (EPA) has produced this model curriculum to teach individuals how to conduct lead sampling in housing.

This document is the **Trainer Manual** that accompanies this EPA-sponsored training course. This manual guides trainers through the presentation of the course materials and is designed to be used in conjunction with the **Student Manual** for the course.

Objectives for the Course

At the end of the course, students will be able to:

- Conduct a visual assessment and correctly identify visible dust, debris, and deteriorated paint;
- Collect dust samples in accordance with standard acceptable procedures;
- Interpret the results of a laboratory analysis accurately;
- Apply these skills to conduct an appropriate lead sampling examination in post-renovation, HUD-required, and other circumstances;
- Understand the Federal, State, and Indian Tribe regulatory requirements for lead clearance and other lead sampling;
- Write a complete, accurate, and understandable report of sampling results; and
- Explain the results to the client.

Audience for the Course

Organizations that will be interested in this course include:

- State and local public agencies that administer federal funds for housing;
- Non-profit and community housing organizations, particularly those that assist public agencies in administering federal housing funds;

- State and local health departments;
- Home inspection firms; and
- Lead and other environmental services firms.

Appropriate staff to send to this course will include:

- Housing quality standard (HQS) inspectors;
- Rehabilitation specialists;
- Home inspectors; and
- Other staff who are involved in evaluating dwelling units.

Overview of Lead Sampling Technician Training Curriculum

This training course consists of three parts and six modules including:

Part 1: Introduction and Background

- **Introduction** provides a brief overview to the course and includes an icebreaker activity.
- **Module 1: Background** introduces the course objectives and provides general background on the health risks of lead and the purpose of lead sampling.

Part 2: Skills

- **Module 2: Visual Assessment** explains how to perform a visual assessment.
- **Module 3: Dust Wipe Sampling** describes how to prepare for and collect dust wipe samples.
- **Module 4: Selecting a Laboratory and Interpreting Results** describes how to select an accredited lab, how to submit samples, and how to interpret the results and ensure that they are acceptable.

Part 3: Application

- **Module 5: Putting the Skills Together** gives an overview of the various Federal requirements that apply to lead sampling and explains how to perform lead sampling in three different situations:

- Post-renovation clearance
- HUD-required clearance
- Other lead sampling examinations

- **Module 6: Writing and Delivering the Report** covers how to prepare the report and explain the results to a client.

Course Schedule

The following table provides time estimates for each module allowing time for exercises and participant questions. If two 10-minute breaks are included, the whole course takes approximately 5 hours.

Course Schedule	
Part 1: Introduction and Background	**45 minutes**
Introduction	15 minutes
Module 1: Background	30 minutes
Part 2: Skills	**155 minutes**
Module 2: Visual Assessment	20 minutes
Module 3: Dust Wipe Sampling	90 minutes
Module 4: Selecting a Laboratory and Interpreting Results	45 minutes
Part 3: Application	**90 minutes**
Module 5: Putting the Skills Together	60 minutes
Module 6: Writing and Delivering the Report	30 minutes
Total Time	**~5 hours**

Course Materials

Course materials include trainer and student materials.

Trainer materials. The trainer's materials include overhead slides, other visual teaching aides, and this manual. (See the end of this introduction for a checklist of materials and supplies needed to teach this course.) The trainer manual is organized as follows:

- **Trainer notes.** Each chapter of this manual includes full notes for each module of the

training course. The left column has pictures of the overhead slides and the right column has the trainer script that goes with them. The script highlights key points and provides useful examples. Note that the script is not meant to be used verbatim by the trainer; however, it does include all the information that must be covered by the trainer. The trainer notes are formatted to highlight activities.

Activities. Exercises, actions, reference materials, and discussion questions are all highlighted in shaded textboxes like this one.

- **Attachments.** The trainer's manual includes a number of attachments at the end of each chapter. These attachments are also included in the Student Manual. They include checklists, summaries, model forms, exercises, and other resources. Appendix E contains answers to the exercises included in the modules. Whenever they are used, they are highlighted in the text of the trainer manual with the following icon:

- **Additional information for the trainer.** The trainer's manual also includes additional information that can be used by the trainer to supplement the material that is taught during the course. The trainer does not have to use this information while teaching the course. This additional information will be designated by the following icon:

- **Pictures.** The trainer's manual also includes photographs of the various activities to be performed by the lead sampling technician. Whenever a picture should be shown to the students, it will be designated by the following icon:

- **Field Guide.** Refer students to the Field Guide as appropriate. The icon shown here serves as a reminder to instruct students to refer to their field guides.

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Student materials. Student materials include a Student Manual and a Field Guide. The **Student Manual** provides course participants with copies of the overhead slides that are used by the trainer during the course and with attachments that summarize key information. The student manual is formatted to leave space on each page where student's can take notes as they follow along. The **Field Guide** summarizes key points and procedures in one easy-to-read reference tool. The trainer should encourage students to bring the Field Guide on the job with them when they conduct examinations.

In presenting the course, trainers are encouraged to use the student materials in the following ways:

- Recommend to the students that they follow along with the overhead slides as they are presented and take notes in the space provided;
- Refer students to the attachments and appendices with helpful information and encourage them to mark pages with important information, summaries, checklists, tables, or tools they can use; and
- Refer students to the Field Guide as appropriate.

Instructional Information

Trainer responsibilities. The success of each training session depends upon good preparation and effective delivery of course materials. While this manual provides specific guidance about presenting this course, trainers will need to use their professional expertise and training experience in preparing their lessons and adapting their deliveries to address the needs of students in each session. The key responsibilities of each trainer are:

- Understand the course material;
- Prepare for each lesson based on the guidance and instructions in the Trainer Manual;
- Deliver lessons and accomplish objectives within each module and course time frames;

- Make sure that questions from students are answered, or refer them to an appropriate resource; and
- Reinforce course objectives throughout the training session.

Instructional methods. This course is primarily lecture-based; however, it is designed to be interactive. Several of the modules include exercises and activities. Throughout the presentation, trainers are encouraged to be conversational in tone and solicit student input. The trainer notes highlight appropriate times to prompt students for input. Trainers may modify lesson activities, as long as the learning objectives for the module are accomplished and the key points identified are effectively covered.

Preparing for a training session. Prior to each course delivery, trainers are responsible for making the following preparations:

- Planning the delivery of their lessons;
- Reviewing the participant registration forms to familiarize themselves with the students, their agency and position, and any special issues they have identified;
- Ensuring that the training room is properly set-up; and
- Confirming that all the necessary training supplies, materials, and equipment are available at the training site.

Attachment – Trainer's Checklist

Supplies and Materials for the Course
✓ Trainer manual – including notes and attachments
✓ Student manuals – including copies of trainer overhead slides and attachments
✓ Field guide
✓ Overhead slides
✓ Dust sampling materials
- Disposable wipes
- Gloves
- Centrifuge tubes
- Templates (Floor and window templates)*
- Tape
- Measuring tape
- Sample collection forms
- Labeling and clean-up supplies
- Ink pen
✓ Flipchart and/or blank transparencies for recording additional information

*Trainers may choose to provide samples of floor and window templates to the students during the course. As a resource, the trainer may find a list of sources of templates on the National Center for Lead-Safe Housing's web site at www.leadsafehousing.org.

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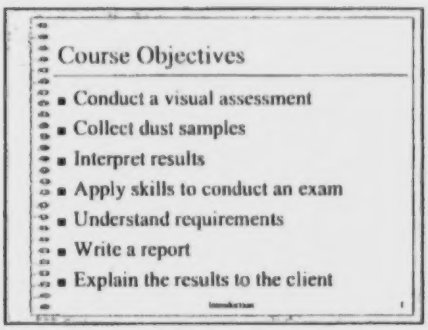
Introduction (15 minutes)

Before starting Module 1, do a brief introduction to the course. Introduce trainer(s), the course, the purpose of lead sampling, and logistical information. Take five minutes to do the icebreaker activity.

The Training Course

In 1999, Congress urged the U.S. Environmental Protection Agency (EPA) to make lead dust testing more available and affordable by developing a relevant one-day sampling technician training course. In response, EPA has produced this model curriculum to teach individuals how to conduct lead sampling in housing. This course supports the upcoming EPA renovation and remodeling regulation as well as Housing and Urban Development's (HUD) regulation on lead-based paint in Federally Owned Housing and Housing Receiving Federal Assistance.

Lead sampling is often performed to find out if dust or deteriorated paint remain after lead hazard reduction, renovation, remodeling, rehabilitation, and maintenance work.



At the end of this course, students will be able to:

- Conduct a visual assessment and correctly identify deteriorated paint, visible dust, and debris;
- Collect dust samples in accordance with standard acceptable procedures;
- Interpret results of a laboratory analysis accurately;
- Apply these skills to conduct an appropriate lead sampling examination in post-renovation, HUD-required, and other circumstances;
- Understand the Federal, State, and Indian Tribe regulatory requirements, if applicable, for lead clearance and other lead sampling;
- Write a complete, accurate, and understandable report of sampling results; and
- Explain the results to the client.

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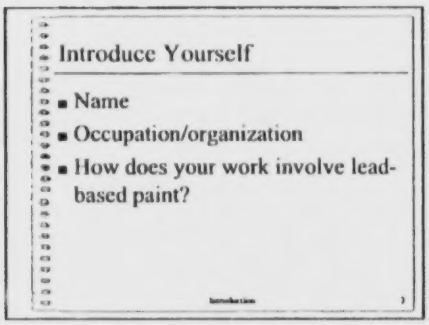
Logistical Information

- Provide the students with a brief overview of the schedule for the day including breaks, lunch, etc.
- Also indicate where the restrooms and phones can be found.
- Discuss any ground rules that are appropriate.

Icebreaker Activity for Participants (5 minutes)

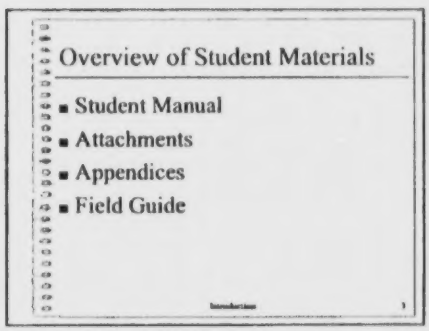


Instructions: The purpose of this activity is to involve students actively at the beginning of the course and gather relevant background information about the participants, such as name, occupation, and work experience.

Ask each of the participants to introduce themselves by stating their name, occupation, and the type of work they do that involves lead-based paint.

If it is a large group, have the participants do this exercise in small groups where they are seated.

Overview of Student Materials



Describe and explain how the course materials are to be used by the students during the course. Walk the participants through their materials as you describe them. After this brief overview, begin *Module 1*.

The student materials include a Student Manual, Attachments, Appendices, and a Field Guide.

- The student manual provides course participants with copies of the overhead slides that are used by the trainer during the course and with attachments and appendices that summarize key information. The student manual is formatted to leave enough space on each page where student's can take notes as they follow along.
- The attachments and appendices provide important summaries, checklists, tables, or tools they can use.

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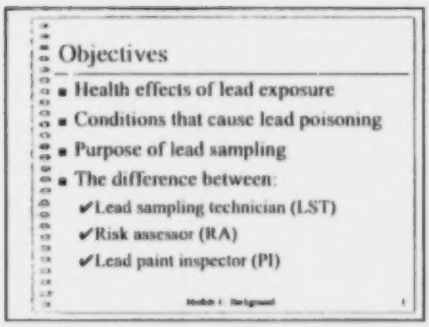
- The field guide summarizes key points and procedures in one easy-to-read reference tool that can be taken along on the job.

Module 1: Background (30 minutes)

This module will provide general background on the purpose and requirements for lead sampling, including the health effects of lead, the conditions that cause lead poisoning, and the responsibilities of lead sampling technicians.

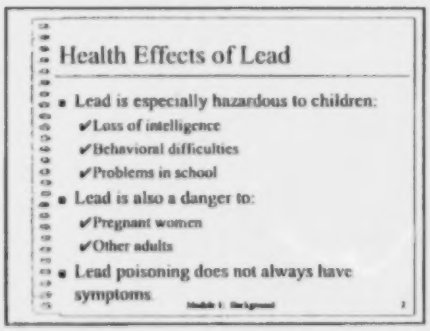
Objectives



After completing this module, students will be able to:

- Understand the health effects of lead exposure and the danger to children posed by improper renovation or remodeling. (**Note:** Remodeling includes surface preparation for repainting work. Repainting requiring surface preparation should follow these guidelines.)
- Understand the conditions that can cause lead poisoning.
- Explain the purpose of lead sampling.
- Recognize the differences between a lead sampling technician, risk assessor, and lead paint inspector.

Health Effects of Lead



Before we get started, it helps to understand why we are here. The primary reason we care about lead is because it concerns our health, particularly children's health.

Lead is a naturally occurring element that is harmful to humans when taken into the body. Lead is especially hazardous to children because it can cause serious and long-lasting physical and mental problems. In extreme cases, high levels of lead in the body can kill a child.

What happens when people are exposed to lead?

Discussion. Ask participants if they know what happens when people are exposed to lead.

Children under the **age of six** are the most at risk to the health effects of lead poisoning because their bodies and their nervous systems are still developing. Lead enters the body when children

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inhale or swallow it through normal hand-to-mouth activity when they play. The lead is stored in bones, organs, and the brain. It then inhibits normal growth and development.

Children who are poisoned by lead are likely to have problems in school because of:

- Loss of intelligence
- Learning difficulties
- Behavioral difficulties
- Damage to brain and nervous system
- Slowed growth

Pregnant women and women of childbearing age are at risk because changes that occur in a woman's body during pregnancy may cause lead stored in her bones to be released into her blood. Lead can then be passed from the mother to the fetus. Pregnant women are likely to inhale lead-contaminated dust when proper precautions are not taken during and after renovation, remodeling, or repainting activities. Lead poisoning can cause:

- Miscarriages
- Premature births
- Low birth weight

Other adults can also be lead-poisoned if exposed to high levels of lead. This type of exposure may happen to people whose professions expose them to lead, such as painting, renovation and remodeling, lead smelting or bridge painting. Other sources of exposure could include stained glass, ammunition loading, fishing sinkers, and soldering. Symptoms include loss of sex drive, impotence, nausea, weakness, anemia, and fatigue.

Additional information for the trainer. When discussing the effects of lead poisoning, emphasize the effects that people care most about. These are children having problems in school and adults becoming impotent.

Lead poisoning does not always have symptoms. Lead poisoning often has no symptoms or symptoms that are attributed to other causes. The best way to determine if lead is present in the body is by testing a person's blood.

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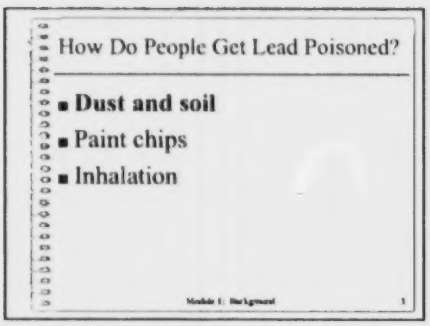
How Do People Get Lead Poisoned?

In the past 20 years, we have learned a lot about how people get poisoned by lead and the conditions that put people most at risk.

Discussion. Ask participants if they know how people get poisoned.



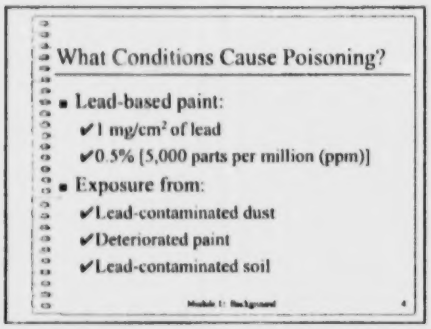
Lead-contaminated dust and soil. The most common way to be poisoned is by ingesting lead-contaminated dust or soil. This is one reason why young children are more likely to be poisoned than adults. While they play, children put their hands and their toys in their mouths and in the process, consume lead-contaminated dust and soil.

Paint chips. Children can also be poisoned when they consume lead-contaminated paint chips. Children are less likely to be poisoned by eating paint chips than by consuming dust, but paint chips do represent a danger. (Most clinical cases of severe childhood lead poisoning are caused by eating paint chips.)

Inhalation. It is also possible to inhale lead. This is most common among workers who burn lead (and breathe the fumes) or perform activities which create fine dust (such as machine sanding painted surfaces).

The key message is that dangerous sources of lead poisoning exist in and around the home. Most children get poisoned around their home and neighborhood.

What are the conditions that cause poisoning?



To understand the conditions that cause lead poisoning better, it is useful to know what lead-based paint is and the conditions that cause exposure to it.

Lead-based paint is paint that contains lead above a certain amount. The federal guidelines for lead-based paint are:

- Greater than or equal to 1 mg/cm^2 of lead; and
- Greater than or equal to 0.5% [5,000 parts per million (ppm)] lead by dry weight.

Lead-based paint that is intact is usually not likely to be consumed and cause exposure. We are

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more concerned with the conditions that cause exposure to it.

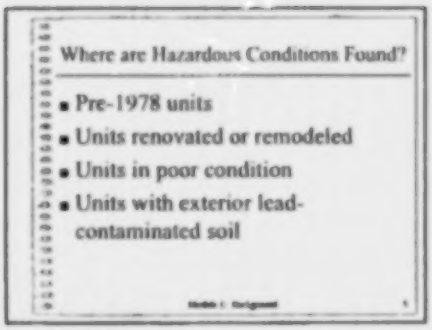
The conditions that can result in harmful levels of exposure to lead include the following:

- **Lead-contaminated dust.** Children may consume lead-contaminated dust during ordinary play. Dust is considered a lead hazard if its lead content reaches a certain level. Dust sampling measures the lead content of dust and determines if it is at a hazardous level. *(Federal standards for lead-contaminated dust will be discussed in Module 5 and are included in the **Field Guide**.)*

- **Deteriorated lead-based paint.** Deteriorated lead-based paint may be harmful if swallowed by a child. It also creates lead-contaminated dust as it deteriorates. Since we don't always know the lead content of paint, we treat all deteriorated paint as a potential hazard.

- **Lead-contaminated soil.** Lead-contaminated (bare) soil can pose a threat to children who come into direct contact with it as they play in the soil or surrounding areas. Lead-contaminated soil also can be tracked inside the home on shoes and by pets.

- **Lead-contaminated drinking water.** Drinking water can be contaminated with lead, regardless of the water's source. Many faucets in homes and on store shelves contain leaded components that can leach lead into the water. We will not discuss lead-contaminated water in this course, because it is not an item that is investigated by a lead sampling technician.


Where are Hazardous Conditions Found?
• Pre-1978 units
• Units renovated or remodeled
• Units in poor condition
• Units with exterior lead-contaminated soil

Where are Hazardous Conditions Found?

The dwellings most likely to contain conditions that can cause exposure to lead-based paint are listed below.

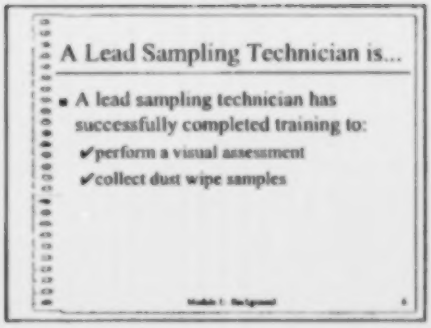
- **Pre-1978 units.** Lead-based paint was used in homes until 1978, when it was banned by the Consumer Product Safety Commission for residential use. Homes built prior to 1950 are more likely than newer homes to contain higher concentrations of lead and to have deteriorated paint surfaces.

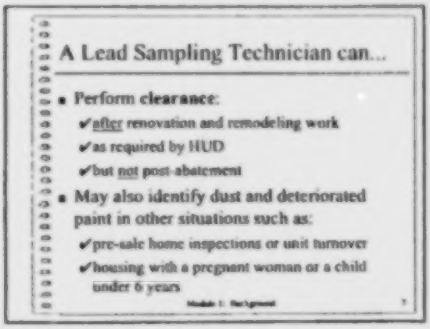
- **Units renovated or remodeled.** Renovation, remodeling, repainting, and rehabilitation in pre-1978 units is likely to disturb surfaces painted with lead-based paint and create hazardous conditions.
- **Units in poor condition.** Pre-1978 units in poor condition are likely to have deteriorated paint and lead-contaminated dust.
- **Units with lead-contaminated soil.** Deteriorating exterior paint that contains lead and past emissions of leaded gasoline are the primary sources of lead in soil. Lead-contaminated soil can be tracked into the home as lead-contaminated dust.

What is a Lead Sampling Technician?

EPA and many states have established rules that require individuals and firms involved in lead evaluation and reduction activities to obtain training and certification. These rules establish various disciplines. A lead sampling technician is one of them.

A lead sampling technician is . . . A lead sampling technician has successfully completed training to perform lead sampling, including performing a visual assessment and collecting dust wipe samples. **For the purposes of this discipline, clearance refers to non-abatement clearance activities.**


A Lead Sampling Technician is...
A lead sampling technician has successfully completed training to:
✔perform a visual assessment
✔collect dust wipe samples


A Lead Sampling Technician can...
Perform clearance:
✔after renovation and remodeling work
✔as required by HUD
✔but not post-abatement
May also identify dust and deteriorated paint in other situations such as:
✔pre-sale home inspections or unit turnover
✔housing with a pregnant woman or a child under 6 years

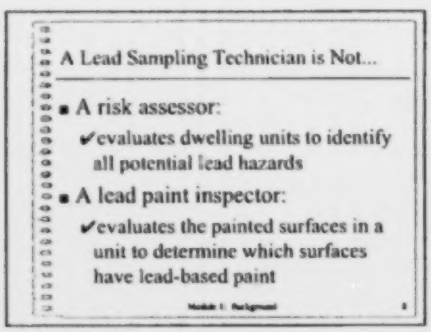
- **Clearance.** A lead sampling technician is qualified to perform clearance.
  - Clearance is performed following renovation and remodeling or hazard reduction activities to determine if a work site has been cleaned properly.
  - It is required by HUD after HUD-funded rehabilitation, lead hazard reduction, or other activities that involve disturbance of painted surfaces. (HUD has a number of other requirements regarding the lead sampling technician's qualifications and where they are permitted to perform clearance. These will be discussed in *Module 5*.)

- **Note:** Only individuals certified as either a risk assessor or lead paint inspector can perform post-abatement clearance.

- **Other sampling.** A lead sampling technician may also conduct lead sampling to identify dust and deteriorated paint in other situations such as:
  - pre-sale home inspections (not a lead-based paint inspection)
  - unit turnover
  - to assess lead levels where there is a pregnant woman or a child under 6 years living in a pre-1978 home

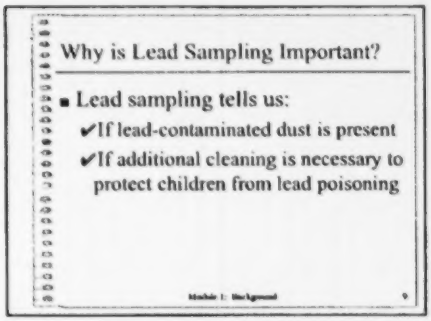
A lead sampling technician is not . . . A lead sampling technician is not trained to identify lead hazards or make judgments about the overall lead-safety of a dwelling. This is the job of a risk assessor or lead paint inspector.

- **Risk assessors** evaluate dwelling units to identify all lead hazards.
  - The evaluation involves a visual examination as well as dust, soil, and paint chip sampling.
  - The risk assessor then writes a report that describes the nature, severity, and location of all identified lead-based paint hazards.
  - A risk assessor provides options for remediation of each identified lead hazard.
  - The risk assessor can perform clearance in post-abatement situations.


A Lead Sampling Technician is Not...
A risk assessor:
✔evaluates dwelling units to identify all potential lead hazards
A lead paint inspector:
✔evaluates the painted surfaces in a unit to determine which surfaces have lead-based paint

- **Lead paint inspectors** evaluate the painted surfaces in a unit to determine which surfaces have lead-based paint.
  - They measure the concentration of lead in paint on a surface-by-surface basis.
  - They present a report that identifies the location and concentration of lead for each surface tested.
  - Like risk assessors, they can do post-abatement clearance.

Reference Materials. Refer students to **Attachment 1-A** for a summary table that describes the difference between these different lead evaluation professionals.


Why is Lead Sampling Important?
■ Lead sampling tells us:
✔If lead-contaminated dust is present
✔If additional cleaning is necessary to protect children from lead poisoning

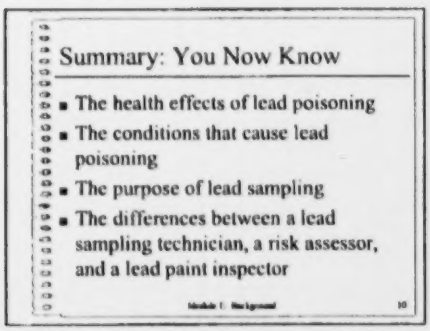
Why is Lead Sampling Important?

Discussion. Ask the participants why lead sampling is important.

- Lead sampling is important because it tells us if lead-contaminated dust is present. If it is, additional cleaning is necessary to protect children from exposure to lead.

Activity: Photographs tell the story. Before summarizing the module, show the students the series of photographs that illustrate lead sampling:

1. Technician getting a call from a client
2. Preparing to go to the site – gathering materials
3. Technician doing a visual assessment
4. Technician dust sampling – the first pass of the wipe
5. Technician dust sampling – the second pass of the wipe (in the other direction)
6. Technician delivering the report


Summary: You Now Know
■ The health effects of lead poisoning
■ The conditions that cause lead poisoning
■ The purpose of lead sampling
■ The differences between a lead sampling technician, a risk assessor, and a lead paint inspector

Summary of Module 1

Students should now be able to:

- Explain the health effects of lead exposure and the danger to children posed by improper renovation, remodeling, repainting, and lead hazard reduction work.
- Understand the conditions that can cause lead poisoning.
- Explain the purpose of lead sampling.
- Recognize the differences between a lead sampling technician, a risk assessor, and a lead paint inspector.

Student Materials for Module 1

- Copies of trainer slides

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- **Attachment 1-A**: Comparing Lead Evaluation Professionals

Attachment 1-A

COMPARING LEAD EVALUATION PROFESSIONALS			
	LEAD SAMPLING TECHNICIAN (LST)	**RISK ASSESSOR (RA)**	**LEAD PAINT INSPECTOR (PI)**
Qualified to perform the following types of evaluations	• Clearance • Other dust wipe sampling	• Risk assessments • Paint inspections • Clearance • Other lead sampling	• Paint inspections • Clearance • Other lead sampling
Is not qualified to perform	• Post-abatement clearance • Certain situations as defined in the HUD regulations (*See Module 5*)		• Risk assessments
Training/ Certification required to perform evaluations	• 5 hour training	• Certification • 5 days of training	• Certification • 3 days of training
Skills	Perform: • Visual assessment • Dust wipe sampling To give a "pass/fail" result.	Perform: • Interview of residents • Visual evaluation • Dust wipe sampling • Soil sampling • Paint chip sampling • XRF testing To assess a unit, identify lead hazards, and recommend methods for lead hazard reduction.	Perform: • Visual evaluation • Paint chip sampling • Paint testing by XRF Can also perform: • Lead sampling (dust wipe, soil) To identify the existence and location of lead-based paint.

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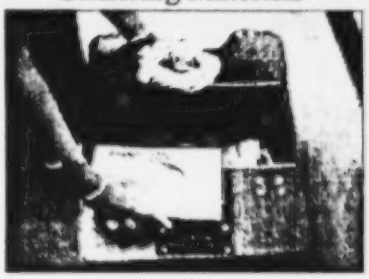
Technician Receiving Call

Gathering Materials



Visual Assessment

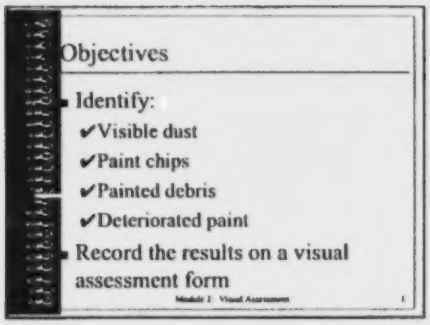
Dust sampling (first pass)

Dust sampling (second pass)

Delivering the Report to Client

Module 2: Visual Assessment (20 minutes)

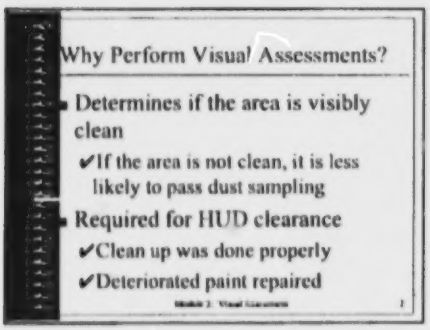
This module will outline the steps a lead sampling technician must take to perform a visual assessment. A visual assessment is the first activity to perform on-site for any lead sampling examination.



Objectives

By the end of this module, students will be able to:

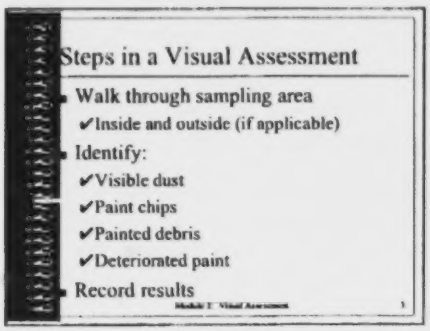
- Identify visible dust, paint chips, painted debris, and deteriorated paint.
- Record the results of the visual assessment on a visual assessment form.


Why Perform Visual Assessments?
Determines if the area is visibly clean
✔If the area is not clean, it is less likely to pass dust sampling
Required for HUD clearance
✔Clean up was done properly
✔Deteriorated paint repaired

Why Perform Visual Assessments?

Discussion. Give students some context for the visual assessment. Explain that it is the first thing they will do when they arrive on site. Ask participants why they think it is important to perform visual assessments.

- The visual assessment determines if the dwelling unit is clear of conditions that can result in lead poisoning, such as obvious dust, paint chips, painted debris, and deteriorated paint.
- If these conditions are present, it is likely that the unit will not meet the standards/guidance for dust wipe samples.
- It is required for HUD clearance purposes:
  - To demonstrate that the contractor has cleaned up properly.
  - To document that deteriorated paint was repaired as required by the HUD regulation.



What are the Steps in a Visual Assessment?

- Walk through the sampling area. This usually involves the inside of a dwelling unit, including common areas, and may involve the areas outside.

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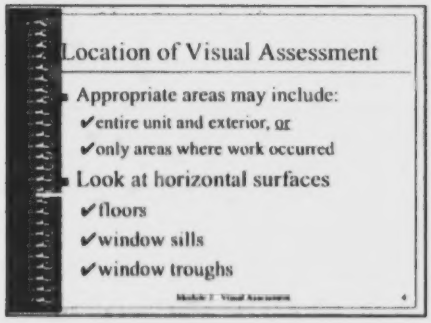
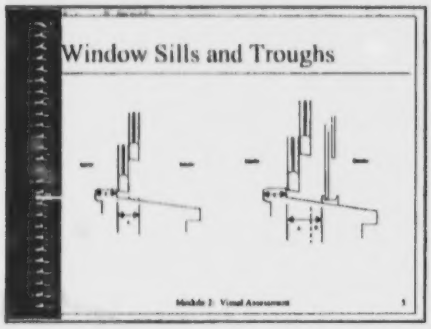
- Identify visible dust, paint chips, painted debris, and deteriorated paint.
- Record the results on a visual assessment form.

Reference Materials. Show participants the model form provided as **Attachment 2-A**.



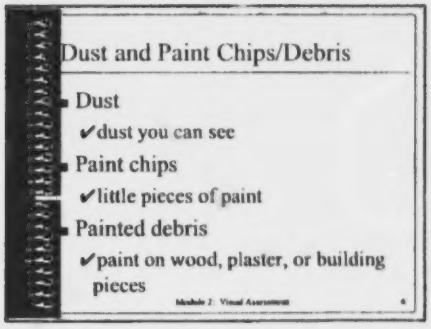


Where Does a Visual Assessment Take Place?

- Appropriate areas for the visual assessment include both interior and exterior places. The evaluation may be limited to areas where work has occurred or it may include the entire dwelling unit and exterior. *(This will be discussed in more detail in Module 5.)*
- Look at horizontal surfaces such as floors, window sills (the horizontal piece at the base of a window opening), and troughs (the area of the sill between a window stool or interior sill and the frame of the storm window or screen where the bottom sash rests when closed [also called a window well or exterior sill]). These items are diagramed on Slide #5. Note that in the first picture, the sill is labeled C and the trough is labeled A. In the second picture, the trough is defined by the storm window and is labeled A + B.
- Also look at exterior surfaces, such as bare soil areas and exterior troughs.

What Do Visible Dust, Paint Chips, and Paint Debris Look Like?

- Visible dust is dust that you can see.
- Paint chips are little pieces of paint or paint on wood or plaster. Chips can be as small as your fingernail or as large as your hand. Look for paint chips on floors, windows and soil close to the work area (if the technician knows where the work took place).
- Painted debris can be pieces of wood, plaster or building pieces covered with paint that are left in the room or on the soil near where the work was done.



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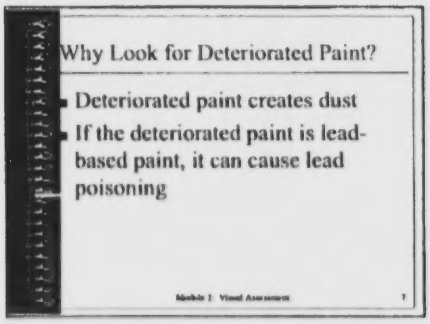
Why Look for Deteriorated Paint?
Deteriorated paint creates dust
If the deteriorated paint is lead-based paint, it can cause lead poisoning

What Does Deteriorated Paint Look Like?

First, answer the question "why are we looking for deteriorated paint? The answer is that deteriorated paint creates dust, which if lead-based paint, can cause lead poisoning. If you want to address lead-contaminated dust in a housing unit, you need to address its sources and one of them is deteriorated lead-based paint. Since we don't always know if paint is lead-based paint or not, we treat all deteriorated paint as a potential source of exposure to lead. (See **Handout 1** in **Appendix B.**)

Activity– Pictures tell the story. Show slides of different types of deteriorated paint. Ask students to tell you whether they would consider the paint shown as deteriorated and what they think caused the problem. This activity should take approximately 5 – 10 minutes.

The photographs include:

1. Peeling paint – paint can peel due to poor surface preparation, moisture, or wear and tear due to the weather.
2. Peeling paint – separating from the substrate. This is due to poor surface preparation.
3. Chipping paint – this can be the result of impact ot the surface, moisture or poor surface preparation.
4. Chalking paint – Some paint is designed to chalk so that there is always a fresh surface. It is hard to see on the picture but it looks like fine dust on the surface.
5. Cracking paint – Cracks caused by moisture or vibration will continue to deteriorate so they need to be fixed (by addressing the cause). Note – settlement cracks do not deteriorate further and are less of a concern.
6. More cracking paint – this is obviously deteriorated.
7. Holes in the wall – this deterioration is the result of an impact. Note: Nail holes do not constitute deterioration.
8. Moisture damage – moisture in this case caused bubbling.
9. Friction damage – friction caused this damage to the window.

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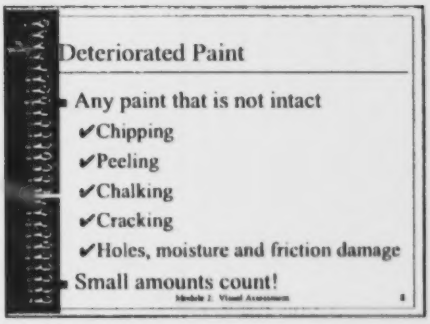
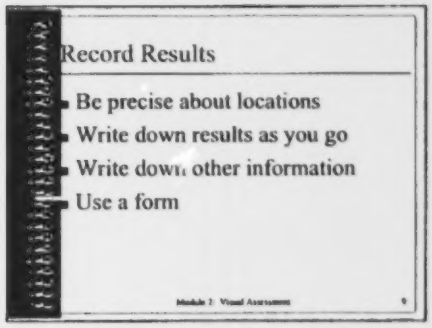


- Deteriorated paint is any paint that is not intact. It does not have to be peeling paint.
- As seen in the previous photographs, deteriorated paint can include:
  - Chipped paint on door and window trim
  - Peeling and flaking paint on walls and window sashes
  - Paint with little bubbles that look like blisters
  - Paint with lines and cracks that make it easy to peel the paint away
  - Paint that is chalking creating chalk-like dust
  - **Note:** Hairline cracks and nail holes are not considered deteriorated paint

Reference Materials. See **Handout 1 in Appendix B** for more detail on deteriorated paint and the conditions that cause it. This handout can be useful when explaining to clients why they should fix the deteriorated paint. Also, give clients **Handout 3** which describes how to fix the deteriorated paint safely.

How to Record the Results of a Visual Assessment



- Be precise about locations where visible dust, paint chips, painted debris, and deteriorated paint were found.
- Write down results as you go along.
- Write down other information the client provides about the surface in question. For example, the client may tell you that a surface has been tested and found not to be lead-based paint.
- See **Attachment 2-B** for a sample, completed visual assessment form.

Reference Materials. Refer students to **Attachment 2-B**. Review the sample, completed form with participants. Highlight the specificity of locations recorded.

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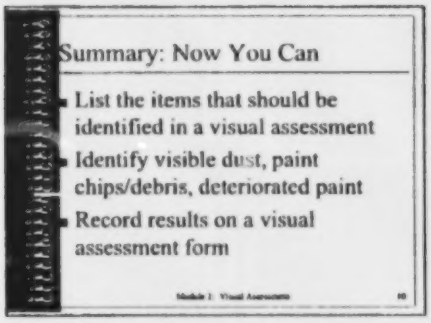
Summary: Now You Can
List the items that should be identified in a visual assessment
Identify visible dust, paint chips/debris, deteriorated paint
Record results on a visual assessment form

Summary of Module 2

In this module, you learned the steps a lead sampling technician must take to perform a visual assessment.

Students should now be able to:

- List the items that should be identified in a visual assessment.
- Identify visible dust, paint chips, painted debris, and deteriorated paint.
- Record the results of the visual assessment on a visual assessment form.

Additional information for the trainer. Students may ask about the implications of the visual assessment. A common question is "what if I document debris or deteriorated paint but the client wants me to take dust samples anyway?"

The answer depends on the purpose of the examination. We will talk about this more in Module 5 (Putting It All Together). The short answer is:

- For HUD-required clearance it is required that a unit pass a visual assessment before samples can be taken.
- In all other cases, it is recommended that a unit pass a visual but it is not required. However, it is unlikely that a unit that cannot pass a visual assessment can pass the dust wipe sampling. Provide the client information on the conditions that cause lead poisoning (See **Handout 1** in **Appendix B**) to help them understand why they should correct these conditions.

Student Materials for Module 2

- Copies of trainer slides
- **Attachment 2-A**: Model Visual Assessment Form
- **Attachment 2-B**: Model of Completed Visual Assessment Form

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Attachment 2-A: Model of Visual Assessment Form

VISUAL ASSESSMENT FORM

Date: _____

Address: _____

Client: _____

Technician: _____

Location	Identify visible areas of dust, paint chips, painted debris, and deteriorated paint. *(Note location: walls, ceiling, floors, doors, windows, trim, cabinets, etc.)*
Entry Area	
Living Room	
Dining Room	
Kitchen	
Common Area	
Bedroom #1	
Bedroom #2	
Bath #1	
Exterior	
Other:_____	
Other:_____	

Attachment 2-B: Model of Completed Visual Assessment Form

VISUAL ASSESSMENT FORM

Date of clearance:	*8/5/99*
Clearance Technician:	*Joe Smith*
Client:	*Sally Jones*
Property address:	*78 East Main St., Apt. A* *Hammond, IN 89898*

Location	Identify visible areas of dust, paint chips, painted debris, and deteriorated paint. *(Note location: walls, ceiling, floors, doors, windows, trim, cabinets, etc.)*
Entry Area	
Living Room	
Dining Room	
Kitchen	*Window above sink; deteriorated paint on window sash; Client said deteriorated paint was tested and is not lead-based paint*
Common Area	
Bedroom #1 *Small bedroom* *(Street Side)*	*East window: deteriorated paint on lower sash and dust and paint chips in trough; Client said deteriorated paint was tested and is not lead-based paint*
Bedroom #2 *Small bedroom* *(Back of the house)*	*Dust and paint chips on floor*
Bath #1	
Exterior	

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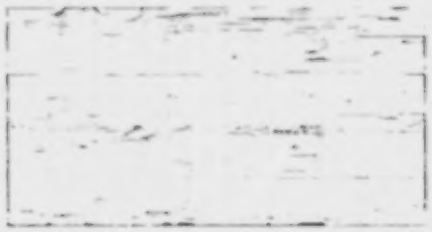
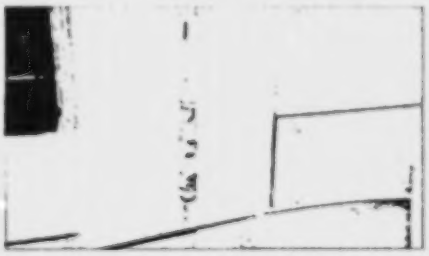
Peeling Paint



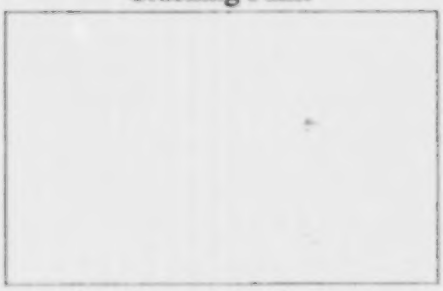
Separating from Substrate

Chipping Paint



Chalking Paint

Cracking Paint



More Cracking Paint

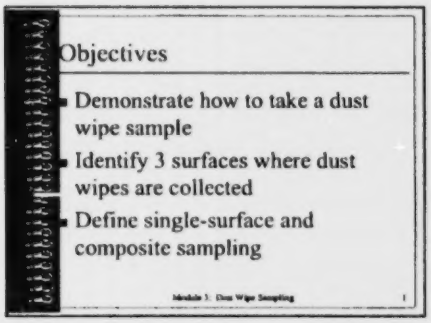
Holes in the Wall

Moisture Damage

Friction Damage

Module 3: Dust Wipe Sampling (90 minutes)

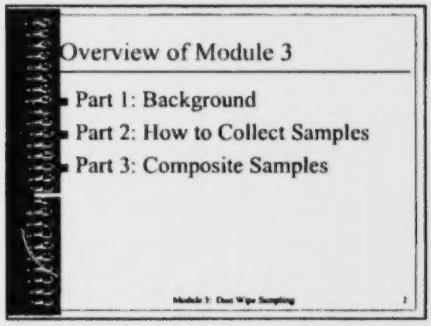
This module will describe how to prepare for and take dust wipe samples. Students will also practice taking samples.


Objectives
Demonstrate how to take a dust wipe sample
Identify 3 surfaces where dust wipes are collected
Define single-surface and composite sampling

Objectives

By the end of this module, students will be able to:

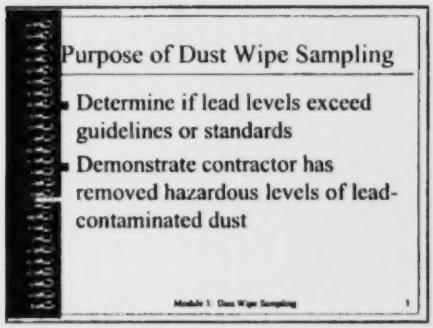
- Demonstrate the correct way to collect a dust wipe sample.
- Identify three surfaces where dust wipes can be collected.
- Define single-surface and composite sampling and describe their benefits and limitations.



Overview of Module 3

- **Part 1: Background.** Why do we collect samples and what do they mean?
- **Part 2: How to collect samples.** We will explain the techniques and steps involved in collecting dust wipe samples. We will also discuss common mistakes and how to avoid them.
- **Part 3: Composite samples.** We will explain what composite samples are and how they differ from single samples.

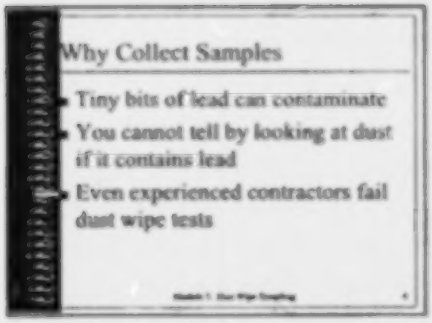
Part I: Background


Purpose of Dust Wipe Sampling
Determine if lead levels exceed guidelines or standards
Demonstrate contractor has removed hazardous levels of lead-contaminated dust

Purpose of Dust Wipe Sampling

The purpose of dust wipe sampling is to:

- Determine the levels of lead in household dust in order to compare the levels to the Federal and/or State guidance levels and standards for lead.
- Demonstrate that the contractor has thoroughly cleaned the work site to remove hazardous levels of lead-contaminated dust.


Why Collect Samples
Tiny bits of lead can contaminate
You cannot tell by looking at dust if it contains lead
Even experienced contractors fail dust wipe tests

Why Collect Samples

Discussion. Ask participants why they think it is important to measure accurately the level of lead in dust inside homes instead of simply looking to see if dust is present. Then review the following points.

- It is often difficult to see tiny specs of dust.
- It takes very little lead to contaminate a room, making it difficult to see if the room has enough dust to be contaminated.
- Not all dust contains lead. You cannot tell by looking if dust is contaminated with lead. A laboratory test is needed.
- Even experienced contractors can fail dust wipe testing because you cannot always see the lead dust. Research on several thousand homes where lead hazard control work occurred demonstrated that contractors fail dust wipe testing in about one-third of the dwelling units where they work.[1]

Example. Review this example with the students. Hold up a package of sweetener to illustrate.

It only takes a little lead to contaminate a room. For example, imagine each granule of sweetener in a sweetener package represents a tiny piece of lead. If only two of these "lead" granules were placed in a one square-foot area of floor, enough lead would be present to exceed the EPA guidance for lead-contaminated dust. An individual granule is very small and would be nearly impossible to find by simply looking at an area, especially if the granule was ground-up into smaller particles and spread throughout the area.

[1] HUD. Evaluation of the HUD Lead-Based Paint Hazard Control Grant program: Fifth Interim Report. 1998.

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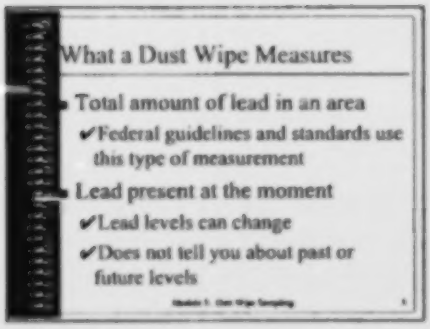
Additional information for the trainer. If students ask for an explanation of the above description, consider the following:

- A gram can be broken down into one million smaller particles called micrograms (µg) that would be too small to see, so imagine that one gram contains 10,000 particles each weighing 100 µg. Assuming the packet of sweetener weighs one gram and contains approximately 10,000 granules of sweetener, each granule would weigh approximately 100 µg.
- Assuming each granule of sweetener represents one particle of lead-contaminated dust. If each particle contains 50% lead (a reasonable estimate for a granule from lead-based paint in an older home), then each particle would contain 50 µg of lead (50% of 100 µg).
- If two of these lead-contaminated particles were spread across a one square-foot (ft^2) area, the amount of lead-contaminated dust would equal the current EPA clearance guidance for floor dust. (The current EPA clearance guidance for floor dust is 100 $\mu g/ft^2$. This may be reduced).


What a Dust Wipe Measures
Total amount of lead in an area
✔Federal guidelines and standards use this type of measurement
Lead present at the moment
✔Lead levels can change
✔Does not tell you about past or future levels

What a Dust Wipe Measures

- A wipe measures the total amount of lead in a specific area. This measurement is called lead "loading." Lead loading is a good indicator of the amount of lead to which a child is exposed.
- It measures lead-contaminated dust at a particular point in time.
  - ➢ Lead levels can change depending upon the activity in the house.
  - ➢ The measurement tells you how much lead exists when the sample was collected; it does not tell you about past or likely future lead levels.
  - ➢ You may need to explain this to clients if dust wipe sampling shows no lead-contaminated dust.

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Discussion. Ask participants to describe reasons why the level of lead in the dust may change over time. Possible answers are: future work that disturbs paint, track-in of lead dust from outside, paint begins to peel or flake due to moisture problems creating lead dust; and windows coated *with* lead-based paint produce paint chips and dust.

Where to Collect Dust Samples
Floors - all jobs
Interior window sills & troughs
✔Interior sill if work was done on windows
✔Interior sill or trough for Federally-assisted housing
See Module 5 for more detail

On What Surfaces Do We Take Dust Wipes?

Certain places best represent the lead levels in a unit and are good predictors of potential lead poisoning risks in children. These places are:

- Floors – including carpeted areas
- Interior window sills – A trim piece that extends from the bottom of the window frame and acts as a narrow shelf
- Window troughs – the area between the interior window sill and the frame of the storm window where the bottom sash rests when closed (also called a window well)

Finding interior window sills and troughs. You need to know the difference between an interior window sill and a window trough. *(More detail will be provided on sampling locations in Module 5.)*

Additional information for the trainer. Some contractors may refer to interior window sills as window stools. However, the terminology "interior window sill" is used in this training to ensure the surface is easily recognizable by all individuals and to limit the amount of industry jargon. *(See Module 2 for a diagram of a window.)*

Discussion. Ask participants to explain why samples are collected on floors, interior window sills, and window troughs.

These areas are the key areas to sample because:

- Dust from renovation and repainting jobs tend to fall and collect there.
- Children play in these areas.

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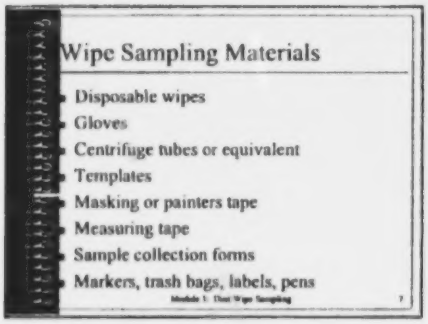
- Studies have shown that dust samples taken in these areas are good predictors of lead poisoning in children.

Wipe Sampling Materials and Supplies

Discussion. Ask students to list the supplies they think they will need to collect a dust wipe sample. Then refer them to the **Field Guide** for a full list.

Key supplies are listed below. The lab will often provide most of these materials.

Demonstration. Show photograph #1 illustrating all the supplies needed to conduct dust sampling.



- **Disposable wipes.** Use individually packaged wipes or bulk packed baby wipes. Make sure the wipes are thin and do not use any wipes that contain aloe or lanolin. (Laboratories often provide them.)
- **Gloves.** They should be disposable, non-sterilized, and non-powdered. (Laboratories often provide them.)
- **Centrifuge tubes or other hard plastic, non-glass container**. They should be non-sterilized, plastic tubes equipped with a sealable lid.
- **Templates.** Floor templates should have a 12 inches by 12 inches opening (1 square foot) and be made of a durable and reusable material, such as plastic or metal. Templates for interior window sills and window troughs can be purchased in various dimensions.
- **Tape.** Painters or masking tape work well. Tape is used to both secure templates while taking dust samples and to outline sample areas when templates are not available.
- **Measuring tape.** To measure sampling areas if templates are not available.
- **Sample collection forms**. Laboratories will generally provide their own forms.
- **Labeling and clean-up supplies.** Permanent markers, trash bags, labels.

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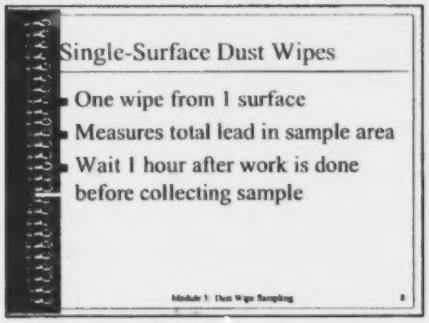
- **Ink pen.** A pen should be used to complete the sample collection form and write down notes.

Additional information for the trainer. Trainers may want to stress to the students that most of these supplies should be made available by labs. To research labs that provide supplies, trainers may consult the National Center for Lead-Safe Housing's web site at www.leadsafehousing.org.

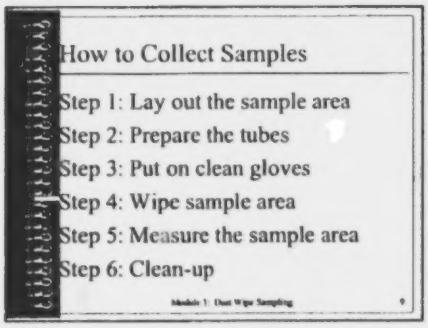

Single-Surface Dust Wipes
One wipe from 1 surface
Measures total lead in sample area
Wait 1 hour after work is done before collecting sample

Single-Surface Dust Wipe Samples

- Single surface dust wipe samples contain one wipe.
- They measure lead dust from a specific surface such as a floor or an interior window sill.
- They measure the total lead in the surface area.
- They do not tell you about dust lead levels in other places on the same surface. Dust lead levels can vary substantially.

Wait a minimum of one hour after work that creates dust or after the final cleanup is completed before collecting dust wipe samples. This allows the dust to fall out of the air and land on the floor and other surfaces.

Part 2: How to Collect Samples


How to Collect Samples
Step 1: Lay out the sample area
Step 2: Prepare the tubes
Step 3: Put on clean gloves
Step 4: Wipe sample area
Step 5: Measure the sample area
Step 6: Clean-up

Explain to the students that this slide presents an overview of the dust sample collection process. The process has six key steps. Each step is introduced here. More detail is provided on each step later in this module.

You may choose to demonstrate the proper techniques for collecting lead dust samples as you go over each step. Demonstration boxes highlighting these activities have been included throughout Part 2. Alternatively, you may choose to demonstrate the proper techniques at the end of the section.

A series of photos illustrating the various steps taken when collecting dust samples are included in the trainer materials. Show these photographs as you go over the different dust sampling steps.

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Step 1: Lay out the sample area. Carefully outline the area you will sample using a template or tape. *(Show photograph #2 of the template taped on the floor and photograph #3 of technician taping the window sill.)*

Step 2: Prepare the tubes. Label the tube and place partially opened tubes near the spot you will sample. *(Show photograph #4 of tube being labeled.)*

Step 3: Put on clean gloves. Put on clean gloves before collecting each sample. This helps minimize contamination.

Step 4: Wipe sample area. Wipe the area you measured with a moist towelette or baby wipe. *(Show photograph #5 of a hand wiping the sill with a dust wipe. Then show photograph #6 and ask participants what is wrong. Answer: The wipe is hanging over the edge of this sill. It must be folded first to make it smaller.)*

- Wipe the entire area you have measured for the sample.
- Fold the wipe up and place it in a nearby centrifuge tube.

Step 5: Measure the sample area. Measure the area sampled and record it on the sample collection form. *(Show photograph #7 of the sill being measured and photograph #8 of completing the form.)*

Step 6: Clean up. Sampling materials must be cleaned or removed from the site because they may be contaminated.

- Clean the template with a wipe and place in a clean plastic bag. This decontaminates the template between uses and helps avoid contamination when it is not being used. Throw wipe away in trash bag.
- Remove gloves and tape. Throw them away in plastic bag.
- Be sure you have recorded the location of the sample area before removing tape.

Reference Materials. Point out that students have this list of steps in the **Field Guide**.

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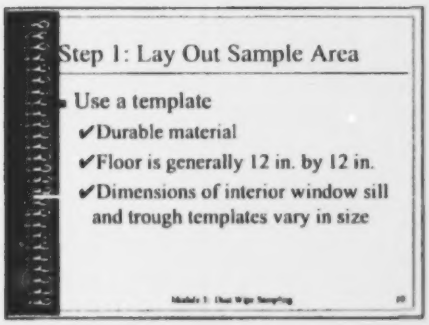
Step 1: Lay Out the Sample Area – Using a Template

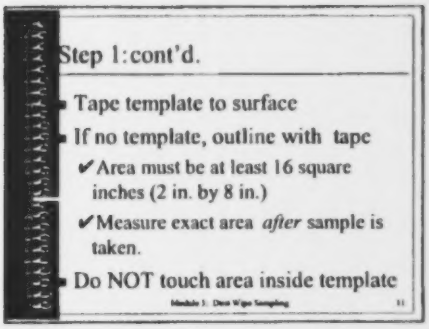
Distribute floor and interior window sill templates and tape measures to the students. These tools are critical for careful measurement of the dust sample locations.

Demonstration. Demonstrate the proper technique for laying out the sample using a template.


Step 1: Lay Out Sample Area
Use a template
✔Durable material
✔Floor is generally 12 in. by 12 in.
✔Dimensions of interior window sill and trough templates vary in size

The following describes how to lay out the sample area for floors and interior window sills. Templates are not available for window troughs.

- Whenever possible, use a template to avoid measurement errors on floors and interior window sills. Using a tape measure can be less precise. If a template is not available, use a tape measure and be precise in measuring the area.
- The templates used for floors and windows will vary in their dimensions:
  - The floor template should have a 12-inch by 12-inch opening. This opening is 144 square inches or 1 square foot (12 inches is equivalent to 1 foot). A square foot is the basic measurement used by EPA and HUD in lead dust clearance guidance and standards. *(Ask students to measure the opening of the template. This gives them practice measuring and demonstrates that the template is one square foot.)*
  - The interior window sill or window trough template should have an opening of at least 16 inches. (This guidance comes from the HUD guidelines.) Interior sills can vary in width. Along the short side of the template are dash marks indicating other distances and their respective conversion factors. Match up the end of the interior sill to one of these dash marks. The area included in the template is equal to the square inch calculation next to this mark.


Step 1:cont'd.
Tape template to surface
If no template, outline with tape
✔Area must be at least 16 square inches (2 in. by 8 in.)
✔Measure exact area *after* sample is taken.
Do NOT touch area inside template

- Tape the template to the appropriate surface (floor, interior sill, or interior trough) using masking or painters tape. Be careful to avoid placing your hands in the sample area as this

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will remove or add lead-contaminated dust and give you a misleading result.

Special Considerations if a Template is Not Available

- If you are sampling a window sill or trough where the template does not fit, forget the template, or do not have a template, you may use tape to outline the sample area. Masking or painters tape work well. Do not re-use this tape because it may contain lead dust on it.

Demonstration. Demonstrate the technique for laying out a sample area when a template is not available. Be careful to avoid placing your hands or tape measure inside the sample area.

- For floors, pre-measure four 12-inch strips of masking or painters tape. Lay them out in a square.
- For interior window sills and troughs:
  - Always take the dust sample on the interior window sill before taking a sample of a window trough. Alternatively, you can sample the interior window sill and window trough areas of different windows.
  - Use a tape measure along the edge of the interior sill or trough to measure its length. The wipe area must be at least 16 square inches (2 inches by 8 inches) to provide enough surface area to produce an accurate lead loading.
  - Lay out the sample area and take the dust wipe. The ideal sample area is the entire width of the interior sill or trough and the length between the two strips of tape on either end of the interior sill or trough. It is not necessary to tape the length of the interior sill or trough if you plan to sample the entire length.
- Do NOT touch or otherwise disturb the area inside the measured sample area. This will remove or add lead-contaminated dust and give you a misleading result. *(You will measure the exact area of the sample area after collecting the dust sample).*

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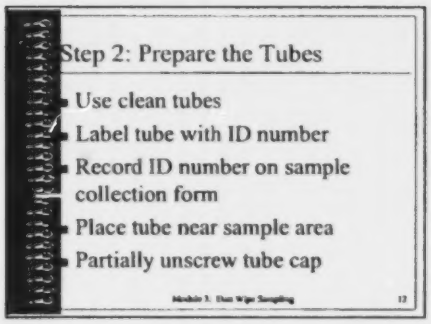
Step 2: Prepare the Tubes

Tubes must be prepared so that they are properly labeled and are accessible to you when you are ready to put your sample in.

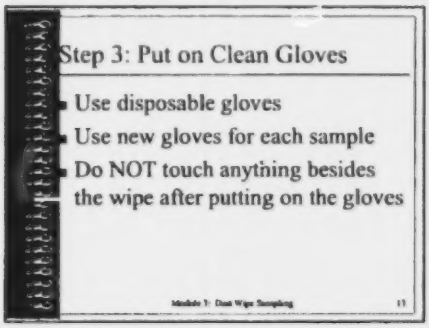
Demonstration. Demonstrate the proper technique for preparing the tubes.


Step 2: Prepare the Tubes
Use clean tubes
Label tube with ID number
Record ID number on sample collection form
Place tube near sample area
Partially unscrew tube cap

- Make sure the tubes are clean.
- Label each tube with a unique identification number.
- Record the identification number on the sample collection form.
- Place the tube near the area you plan to sample. This avoids possible contamination of the wipe and loss of sampled dust between the time you collect the sample and place it in the tube.
- Partially unscrew the cap on the tube to be sure you can open it easily.
- Do not use plastic bags to transport or temporarily hold wipes. Dust can fall into the bag and not be measured by the lab.

Step 3: Put on Clean Gloves

Wearing clean gloves avoids transferring lead dust from your hands to the wipe.


Step 3: Put on Clean Gloves
Use disposable gloves
Use new gloves for each sample
Do NOT touch anything besides the wipe after putting on the gloves

- Use disposable gloves.
- Use new gloves for each sample collected.
- Do not put on the gloves until you are ready to take the sample. You can contaminate the gloves if you touch other surfaces, such as when measuring the sample area.
- Do not touch anything other than the wipe after putting on the gloves. If you do, put on new gloves. This will avoid sample contamination.

Step 4: Wipe the Sample Area

Reference Materials. Trainers should demonstrate this process while describing it. Refer students to the **Field Guide** for a full description.

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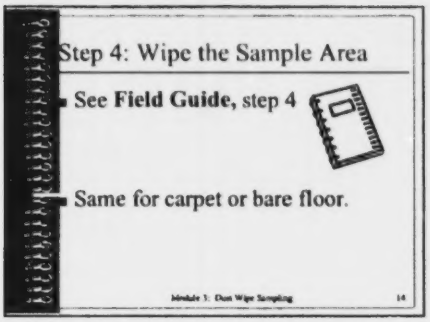
Demonstration. Demonstrate the proper technique for wiping the sample area on both floors and carpeted areas. Stress the proper wipe handling technique, wiping motion, and pressure.



Floors and Carpeted Areas

- Remove the wipe from its individual package or container. Check that the material is moist. Throw the wipe away if it is not moist. A moist wipe makes it easier to collect dust. If you use wipes packaged in a multi-wipe container, discard the first wipe you pull out to avoid contamination and to help ensure that the first wipe is moist.
- Hold the wipe between your thumb and the rest of your hand.
- Do not touch other objects. They can contaminate the wipe.
- Press the wipe down firmly at an upper corner of the sample area.
  - ➢ Press down with your fingers flat on the floor.
  - ➢ Do not use the heel of your hand.
  - ➢ Keep your thumb from slipping off the wipe.
- Make as many "S" like motions as needed to wipe the entire sample area, moving from side to side. Do not cross the outer border of the tape or template.
- Apply constant pressure when wiping to remove all the dust you can see.
- Fold the wipe in half, keeping the dirty side in. This helps to prevent the loss of any collected dust.
- Using the folded wipe, repeat "S" motions, starting from an upper corner and moving from top to bottom. Do not cross the outer border of the tape or template.
- Fold the wipe again, keeping all the dust in the wipe.
- Place the folded wipe in the centrifuge tube. Avoid contact with other surfaces. Wipes

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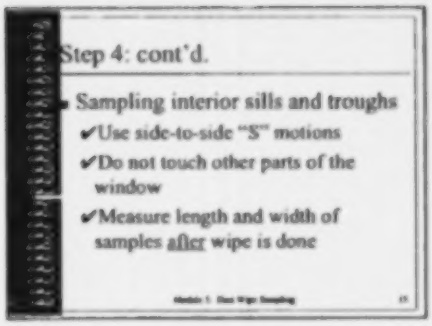
should be stored only in their original container or in the tube. Do not use plastic bags or other items to hold wipes.

- **Note:** This technique applies to bare floors and carpets. While it is preferable to sample bare floors, in some cases, the only surface available is carpeted.

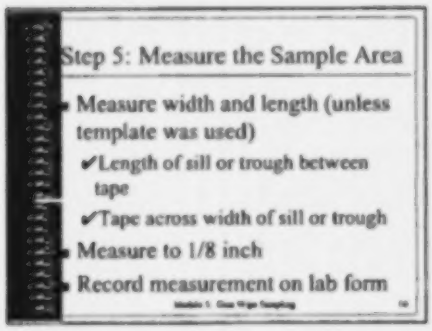
Special Considerations for Interior Window Sills and Troughs


Step 4: cont'd.
Sampling interior sills and troughs
✔Use side-to-side "S" motions
✔Do not touch other parts of the window
✔Measure length and width of samples after wipe is done

- Use two passes of "S" motions from side-to-side instead of up and down. This approach is best because it is often difficult to wipe up and down in a small area.
- Avoid touching other parts of the window that may contaminate the wipe. You may need to fold the wipe in half so it is small enough.
  - ➢ Do not touch the sash or trim.
  - ➢ When sampling the interior sill, avoid the trough, by keeping the window closed.
  - ➢ If sampling the trough, avoid the interior sill.

Reference Materials. Refer students to **Attachment 3-A** that provides a model sample collection form and **Attachment 3-B** that provides an example of a completed model sample collection form.

Step 5: Measure the Sample Area


Step 5: Measure the Sample Area
Measure width and length (unless template was used)
✔Length of sill or trough between tape
✔Tape across width of sill or trough
Measure to 1/8 inch
Record measurement on lab form

If a template was used, record the dimensions of the template on the lab collection form. If a template was not used, you must measure the sample area.

Demonstration. Demonstrate the proper technique for measuring the sample area if a template was not used. Stress the importance of measuring the area after the dust wipe sample has been taken to minimize the possibility of contamination.

- Measure the exact length and width of the sample area with a tape measure after the dust

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sample has been taken. This allows you to get an accurate measurement without contaminating the sample area.

- Make sure you measure the area inside the tape, not the outside border.
- Always measure to an eighth of an inch (1/8"). Sloppy measurement can produce misleading results.
- Record the appropriate area outlined by the tape on the form provided by the laboratory.

Demonstration. Point out the Model Sample Collection Form in **Attachment 3-A** and the Model Completed Sample Collection Form in **Attachment 3-B**.

Go over the forms with the students, describing the purpose and the type of information included in each column. Point out that some conversions may need to be performed to fill out the form – e.g. inches must be converted to feet.

Additionally, to facilitate these calculations, students should convert the dimensions of the sample to from fractions to decimals (e.g., ½ to 0.5). Refer students to the Worksheet for Performing Mathematical Calculations in **Attachment 3-C** for help.

Additional information for the trainer. If necessary, show students how to measure area for collecting dust samples without using a template.

Be sure each student has a tape measure or ruler. Have each student familiarize him or herself with the tool. Ask each student to locate 2 inches, 2 and ½ inches, 2 and ¼ inches and 2 and $^1/_8$ inches. Use the slide with the rule markings to assist you in this exercise.

Possible exercise: Distribute a rectangular piece of paper that was previously measured to be 2 inches by 17 and ¼ inches. Ask students to measure the rectangle and record the measurements. This will help the instructor determine if any students have difficulty reading a tape measure and show students the minimum area necessary to sample for interior window sills and troughs.

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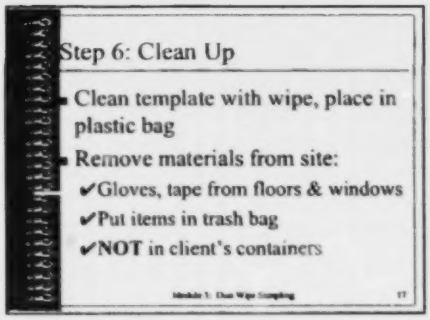
Step 6: Clean Up
Clean template with wipe, place in plastic bag
Remove materials from site:
✔Gloves, tape from floors & windows
✔Put items in trash bag
✔NOT in client's containers

Step 6: Clean Up

Sampling materials may be contaminated and therefore must be cleaned or removed from the site.

- Clean the template with a wipe and place in a clean plastic bag. This decontaminates the template between uses and helps avoid contamination when it is not being used. Throw wipe away in trash bag (unless the template is disposable).
- Be sure you have recorded the location of the sample area before removing tape.
- Remove gloves and tape. Throw them away in trash bag.

Reference Materials. Refer students to **Field Guide**, which summarizes all the steps just described and the Dust Wipe Practicum Checklist in **Attachment 3-D**.

Activity: Taking a Dust Wipe. This activity is estimated to take 30 minutes - 20-25 minutes of group time followed by 5-10 minutes of discussion. Alert students when 10 and 5 minutes of the activity time remain.

Note: To be effective, at most, a 10 to 1 student to teacher ratio is recommended. The instructor may want to bring in additional qualified instructors to oversee this activity.

- Distribute sampling materials (dust wipes, tubes, gloves, tape, ruler, etc.) and a blank sample collection form to the students.
- Divide students into groups of three or four individuals, depending on class size.
- Using the templates and dust sampling materials, have each student practice dust wipe sampling techniques and complete the blank sample collection form. Have students refer to the Dust Wipe Practicum Checklist in **Attachment 3-D** for assistance.
- Encourage students to take samples on a variety of surfaces – window sills, troughs, and both carpeted and uncarpeted floors.

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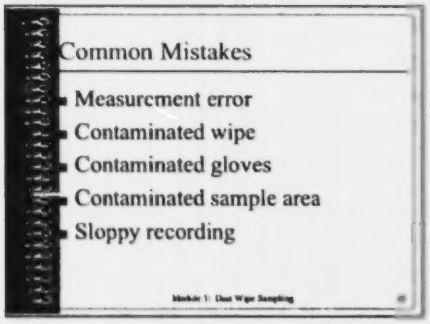
- Go to each of the groups and review the student's sampling, measuring, and recording techniques. Correct any errors and answer any questions students may have.
- Have students briefly discuss any problems they encountered and ask any relevant questions.

Common Mistakes

Discussion. Ask students to tell you the mistakes they make while sampling. Then review the items listed below.



The following are common mistakes when sampling.

Measurement error. Small mistakes in reading the tape measure can produce misleading results. Being off by a ¼ of an inch can make the difference between passing or failing clearance.

Example. Give the students an example. Write the following on a flipchart or transparency as you explain it.

NOTE: You have not yet taught the students how to do the math or what the EPA clearance guidance and HUD standards are. Do not go into detail on these. Simply walk through the steps below without spending time on the math or guidance levels / standards.

You record the interior sill sample area as 3 inches by 24 inches. That's 72 square inches (in^2).

But suppose the sample area was really 3 1/8 inches by 24 inches. That gives you 75 in^2. This is significantly more than 72 in^2 and will affect the results.

Additional information for the trainer. If students question the impact of the mistake, here is additional information.

Imagine the lab analyzes this sample and tells you it has 255 micrograms (µg) of lead.

- 255 µg over 72 in^2 translates to 510 µg/ft^2.
- 255 µg over 75 in^2 translates to 490 µg/ft^2.

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This is a big difference, especially since the EPA clearance guidance for interior window sills is 500 $\mu g/ft^2$. In the first case, you passed the clearance test and in the second you failed. (We will talk more about the EPA guidance levels and HUD standards in later modules.)

The point is a small error in measurement can produce an incorrect clearance result.

Wipe is contaminated. It is important that the wipe is clean before you collect the sample and that you do not lose any dust before putting the wipe in the tube.

Discussion. Ask students to describe situations when a wipe may be contaminated and how to avoid these problems. Review the examples below with the students.

- Wipe touches the floor or window before you place it in the tube.
- Wipe falls to the floor before you begin wiping and you do not get a new one.
- Wiping motions go beyond the template outline or taped area collecting added dust or debris.
- Wipe is placed on the floor or interior sill while unscrewing the tube cap, collecting dust.

Gloves are contaminated. The gloves can contaminate the sample if they are not clean.

Discussion. Ask the students to describe common problems with glove contamination and review the below examples with them.

- Gloves are put on too early and you touch dust on other surfaces.
- Gloves are not changed for each sample. Previously used gloves carry lead-contaminated dust from the previous sample.

Sample area is disturbed. Contamination may remove or add lead dust to sample area before you wipe the area.

Discussion. Ask students to list possible errors and review the following with them.

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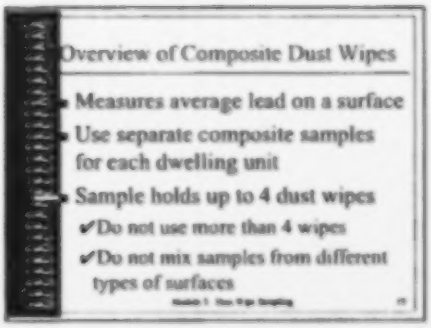
- Place hand or tape measure inside measured area before you wipe it.
- Place hand inside sample area while taping down template to the floor.
- Slide template across sample area as you tape it down.
- Use template that has not been cleaned.

Sample area is recorded incorrectly. To avoid errors:

- Record measurements for interior sills and troughs immediately after measuring the area.
- Review forms before you submit them to double check measurements.

Part 3: Composite Samples

Overview of Composite Dust Wipes


Overview of Composite Dust Wipes
Measures average lead on a surface
Use separate composite samples for each dwelling unit
Sample holds up to 4 dust wipes
✔Do not use more than 4 wipes
✔Do not mix samples from different types of surfaces

A composite is a sample that holds up to four dust wipes in one container. Each wipe is called a sub-sample.

A composite tells you the average level of lead contaminated dust across all the areas you sampled. This provides a measure of average exposure. Sub-samples need to be collected from equal areas for the results to be an average.

In contrast to single wipe samples, composite samples do not define the location of lead-contaminated dust, if it exists. Rather, they simply identify that lead dust exists somewhere in the building or property.

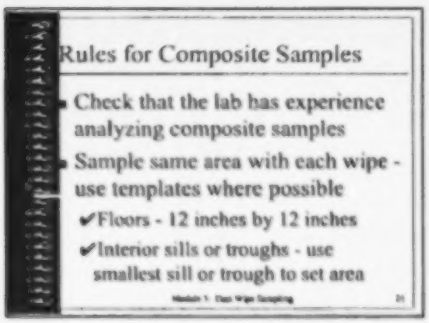
Composite samples may be used during lead sampling.

Rules for Composite Samples
Collect samples in rooms where work occurred
Sample no more than 4 rooms
✔Living room or playroom
✔Youngest child's bedroom (smallest)
✔Kitchen

Rules for Collecting Composite Samples

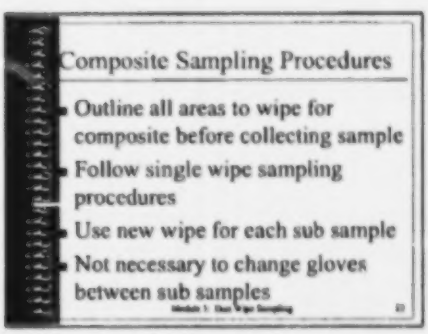
Because composite samples tell you the average level of lead across a number of areas, you must follow some specific rules to ensure the accuracy of the sub-samples.

- Each composite can only include sub-samples from one type of location – floor, interior window sill, or window trough. Do not mix samples from floors with windows and do not mix samples from interior sills with troughs.


Rules for Composite Samples
Check that the lab has experience analyzing composite samples
Sample same area with each wipe - use templates where possible
✔Floors - 12 inches by 12 inches
✔Interior sills or troughs - use smallest sill or trough to set area

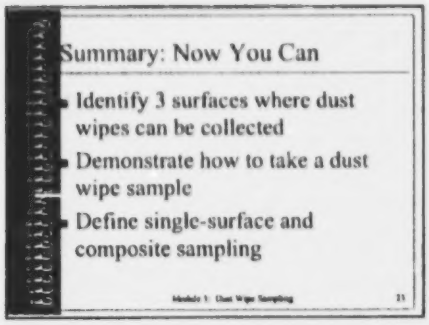
- Make sure the area sampled for each of the sub-samples is the same size. If you include wipes that collected dust from areas with varying sizes, you will not get an accurate reading of the average exposure. This should not be a problem if templates are used.
  - ➢ Floors. Use a 12 inch by 12 inch sample area. Use a template or tape outline.
  - ➢ Interior window sills and window troughs. Identify the smallest interior window sill and/or trough you plan to sample. Measure the length and width after you lay down the template or tape and take the dust sample. Use these measurements to outline the same sample area for all of the other interior sills and/or troughs. This will guarantee that all the interior sills or troughs sampled are the same size.
- Do not combine sub-samples across units. A composite sample can only include dust wipes from a single dwelling unit.
- Do not use more than four wipes in a composite sample. It is difficult for labs to analyze composites holding more than four wipes.
- Check that your lab has experience analyzing composite wipes. (In Module 4, we will talk about selecting laboratories.)

Composite Sampling Procedures


Composite Sampling Procedures
Outline all areas to wipe for composite before collecting sample
Follow single wipe sampling procedures
Use new wipe for each sub sample
Not necessary to change gloves between sub samples

- Whenever possible, use a template when collecting composite samples. If a template is not available, outline the areas you plan to wipe before collecting the sub-samples. Remember the sample size must be the same for all sub-samples included in composite.
- Follow the single wipe sampling procedures.
  - ➢ You can use one set of gloves for all subsamples in the composite. However, if your glove touches an area outside the sample area, put on a new one.
  - ➢ Use a separate wipe for each sub-sample area wiped.

➢ After wiping each area, carefully place the wipe into the tube.


Summary: Now You Can
Identify 3 surfaces where dust wipes can be collected
Demonstrate how to take a dust wipe sample
Define single-surface and composite sampling

Summary of Module 3

In this module, you learned why, where, and how to collect dust wipe samples.

Discussion. Ask students if they can now do the activity described in the objectives.

- Identify the three surfaces where dust wipes can be collected.
- Demonstrate the correct way to collect a dust wipe sample on floors, interior window sills, and window troughs.
- Define single-surface and composite sampling.

Student Materials for Module 3

Student materials will include:

- Copies of trainer slides
- **Attachment 3-A:** Model Sample Collection Form
- **Attachment 3-B:** Model of Completed Sample Collection Form
- **Attachment 3-C:** Worksheet for Performing Mathematical Conversions
- **Attachment 3-D:** Dust Wipe Practicum Checklist

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Attachment 3-A: Model Sample Collection Form

Field Sampling Form for Dust

Name of Inspector: _____

Name of Property Owner: _____

Property Address: _____ **Apt.#** _____

Sample Number	Room (name of room used by owner)	Surface Type* (circle one)	Dimensions of Sample Area (in x in)	Area (ft^2)	Lab Results ($\mu g/ft^2$)
		FL WS WT			
		FL WS WT			
		FL WS WT			
		FL WS WT			
		FL WS WT			
		FL WS WT			
		FL WS WT			
		FL WS WT			
		FL WS WT			
		FL WS WT			
		FL WS WT			

* Surface types FL = Floor; WS = Window Sill; WT = Window Trough

Total number of samples on this page: _____

Date of Sample Collection: ___/___/___ Date Shipped to Lab: ___/___/___

Shipped by _____ Received by _____

Shipped by _____ Received by _____

Shipped by _____ Received by _____

Shipped by _____ Received by _____

Shipped by _____ Received by _____

Page _____ **of** _____

Attachment 3-B: Model of Completed Sample Collection Form

Field Sampling Form for Dust

Name of Clearance Technician: Joe Smith

Name of Property Owner: Sally Jones

Property Address: 78 East Main St., Hammond, IN 89898 **Apt.#** 25

Sample Number	Room (name of room used by owner)	Surface Type* (circle one)	Dimensions of Sample Area (in x in)	Area (ft^2)	Lab Results ($\mu g/ft^2$)
98-1	Upstairs lg. bedroom	(FL) WS WT	12 x 12	1.00	
98-2	Upstairs lg. bedroom	FL (WS) WT	24 x 2.5	0.42	
98-3	Upstairs sm. bedroom	(FL) WS WT	12 x 12	1.00	
98-4	Upstairs sm. bedroom	FL (WS) WT	24 x 3.0	0.50	
98-5	Kitchen	(FL) WS WT	12 x 12	1.00	
98-6	Kitchen – above sink	FL (WS) WT	24 x 2.25	0.38	
		FL WS WT			
		FL WS WT			
		FL WS WT			

* Surface types FL = Floor; WS = Window Sill; WT = Window Trough

Total number of samples on this page: 6

Date of Sample Collection: 8/05/1999 Date Shipped to Lab: 8/07/1999

Shipped by Joe Smith Received by _____

Shipped by _____ Received by _____

Shipped by _____ Received by _____

Shipped by _____ Received by _____

Shipped by _____ Received by _____

Page ____ of ____

3-C: Worksheet for Performing Mathematical Calculations From Fractions to Decimals

When recording the sample area on the dust wipe collection form, you may need to perform one or both of the following conversions: converting fractions to decimals and converting inches to square feet. To facilitate the mathematical calculations, fractions should always be converted to decimals first. Refer to the following Table of Common Conversions for assistance.

1. Converting Fractions to Decimals: Table of Common Conversions

Fraction	Decimal
1/8	0.125
2/8	0.250
3/8	0.375
4/8	0.500
5/8	0.625
6/8	0.750
7/8	0.875

Fraction	Decimal
1/4	0.250
2/4	0.500
3/4	0.750
1/3	0.333
2/3	0.667
1/2	0.500

2. Converting inches to square feet (ft^2)

If the area you sampled was not a square foot, you will need to convert it to this dimension. One foot equals 12 inches, and one square foot equals 144 square inches.

- Record the sample area in inches (in) as opposed to feet (ft).
- Convert the sample area to square inches (in^2). Round the number to a maximum of three decimal places.
- Divide the square inches by 144 to get square feet (ft^2). Round the number to a maximum of three decimal places.

Dimensions of sample area in inches (in)	Length = _____ in Width: _____ in
Multiply length times width to calculate et the area in square inches (in^2)	_____ in × _____ in = _____ in^2
Divide the area in square inches (in^2) by 144 to calculate the area in square feet (ft^2).	_____ in^2 ÷ 144 = _____ ft^2

3. Example: Convert an area with a length of 20 ½ inches and a width of 5 ¼ inches to square feet.

- Convert fractions to decimals: 20 ½ in → 20.500 in 5 ¼ in → 5.250 in
- Calculate the area in square inches: 20.500 in × 5.250 in = 107.625 in^2
- Calculate the area in square feet: 107.625 in^2 ÷ 144 = 0.747 ft^2

Attachment 3-D: Dust Wipe Practicum Checklist

The following checklist lists the steps involved in taking a dust wipe sample. When someone is collecting dust samples, he/she should take each of these steps.

Step	Criteria	✓
1.	**Lay out sample area**	
	• Tapes down template; or	
	• Lays out sample area using tape	
2.	**Uses clean technique**	
	• Puts gloves on after set-up	
	• Has adequate method for handling wipe	
	• Removes wipe and shakes open correctly	
3.	**First swipe: side-to-side**	
	• Presses down firmly – palms & finger	
	• S-like motions	
	• Pressure adequate	
	• Wipes entire surface	
	• Does not cross boundary tape	
4.	**Second swipe: top-to-bottom**	
	• Folds in half, wipes on clean side	
	• Does not shake out contents during folding	
	• S-like motion	
	• Wipes entire surface	
	• Does not cross boundary tape	
5.	**Folds and inserts into tube**	
	• Does not touch other objects	
	• Does not lose surface debris	
6.	**Measures and records accurately**	
7.	**Completes form and labels tube**	

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Dust Sampling Tools

Module 3: Dust Wipe Sampling 1

Taping Template to Floor

Module 3: Dust Wipe Sampling 2

Taping Window Sill

Module 3: Dust Wipe Sampling 3

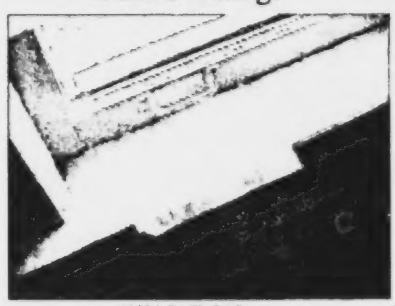
Labeling Sample Container

Module 3: Dust Wipe Sampling 4

Wiping Sill

Module 3: Dust Wipe Sampling 5

What's Wrong?



Module 3: Dust Wipe Sampling 6

Measuring Window Sill

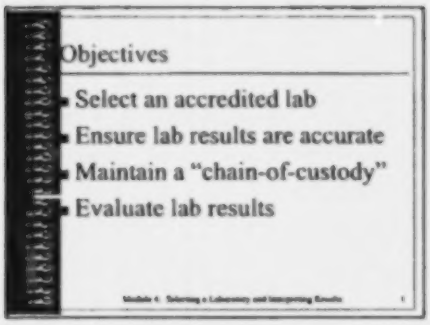
Module 3: Dust Wipe Sampling 7

Completing Dust Sampling Form

Module 3: Dust Wipe Sampling 8

Module 4: Selecting a Laboratory and Interpreting Results (45 minutes)

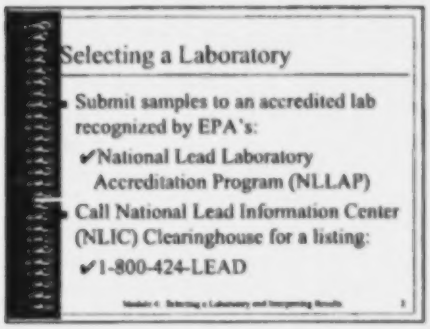
After performing dust wipe sampling, you will need to submit the samples to a laboratory for analysis and interpret the laboratory results to determine if the unit sampled has lead-contaminated dust. This module describes the steps you will need to take to accomplish this goal.



Objectives

At the end of this module, students will be able to:

- Select a reliable, accredited laboratory and explain why proper selection is important.
- Describe the steps they will take to ensure that the laboratory results are accurate and that the sampling media were not contaminated.
- List the important steps to ensure samples are not tampered with or lost – "maintaining a chain-of-custody."
- Evaluate the adequacy of laboratory results and identify missing data or a need for more testing.


Selecting a Laboratory
Submit samples to an accredited lab recognized by EPA's:
✔National Lead Laboratory Accreditation Program (NLLAP)
Call National Lead Information Center (NLIC) Clearinghouse for a listing:
✔1-800-424-LEAD

Selecting a Laboratory

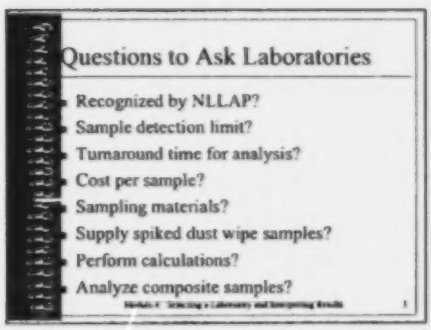
All samples must be submitted to a laboratory recognized by EPA's National Lead Laboratory Accreditation Program (NLLAP).

- The NLLAP provides the public with a list of recommended laboratories for analyzing lead in dust, soil, and paint samples. You can contact the National Lead Information Center (NLIC) Clearinghouse at 1-800-424-LEAD for an up-to-date list of NLLAP-recognized laboratories. The NLIC also distributes a technical bulletin entitled: *"Selecting a Laboratory for Lead Analysis: The EPA NLLP,"* EPA 747-F-99-002, April 1999.
- For a laboratory to become EPA-NLLAP recognized it must participate in the Environmental Lead Proficiency Analytical Testing Program (ELPAT), and undergo a quality system audit, including an on-site assessment by a laboratory accreditation body participating in the NLLAP.

It is important to recognize that not every accredited laboratory will meet your needs. Taking the time to select a good laboratory will save you time and effort in the long run. Knowing the costs associated with laboratory supplies and analysis will also help you calculate the fees you will charge customers. Even if your company has selected a laboratory for you to work with, it is a good idea to ask a few simple, straightforward questions so you can find out if a laboratory meets some basic quality criteria.

Discussion. Ask the students what types of questions should be asked, making sure that the following questions are discussed.

Reference Materials. After the discussion, refer students to the **Attachment 4-A** for a list of questions and appropriate laboratory responses.



Questions. Listed below are some questions you should ask.

- **Is the laboratory recognized by NLLAP?** All samples must be analyzed by an NLLAP laboratory. You can contact the NLIC Clearinghouse at 1-800-424-LEAD for an up-to-date list of NLLAP-recognized laboratories. Even after selecting a laboratory, you should check the laboratory's accreditation every six months.
- **What is the detection limit of the methodology used by the laboratory?** The detection limit is the minimum concentration of an analyte that, in a given matrix and with a specific method, has a 99% probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero. The detection limit of 10 $\mu g/ft^2$ by any means will guarantee accurate laboratory results. It is important that the laboratory report its results in either micrograms (µg) or micrograms per square foot ($\mu g/ft^2$).
- **What is the turnaround time for sample analysis?** Because the occupants often cannot occupy a unit until sampling and analysis is complete, the laboratory turnaround time is important. Labs usually provide results within 1 to 3 days. A faster turn around time allows you to be more responsive to your client but may cost more money.

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- **What is the cost per sample?** You should be able to get your samples analyzed for $7 to $15 per sample. However, prices can vary depending on how quickly you want the results and the volume you send. A 6-hour turn around will cost more than samples analyzed over a few days. Remember to incorporate these costs into your standard fee.

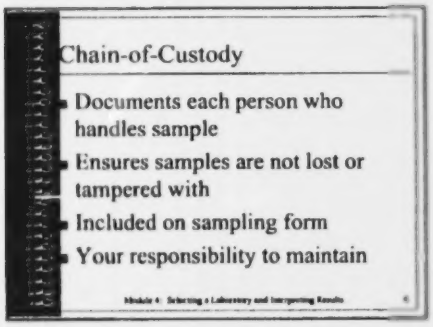
- **Will the laboratory provide sampling materials?** Many laboratories will provide you with all of the materials necessary to perform sampling. Sampling materials will likely include wipes, gloves, templates, tubes for submitting the samples to the laboratory, necessary sample collection forms, and overnight mailing envelopes. You may want to select a laboratory that provides these materials because laboratory-supplied materials and forms can help minimize potential errors in the analysis and record keeping. Additionally, it can save you time by not requiring you to find and purchase all of the necessary supplies.

- **Does the laboratory supply spiked samples?** In addition to the sampling materials, some laboratories will supply you with spiked dust wipe samples. Spikes are dust wipes that have been measured by a laboratory with a known weight of lead-based paint dust, measured to the nearest 0.1µg. They are used to ensure adequate quality assurance of the process at the laboratory. Although submitting spiked samples is optional, they are useful in determining if a laboratory reports back accurate results. If you decide to submit spiked samples, it is important that they are obtained from the laboratory so the sampling materials are consistent with the other wipes and to ensure the laboratory can accurately digest the wipe.

- **Does the laboratory perform all the necessary mathematical calculations?** The federal standards for lead-contaminated dust are provided in particular units (e.g., µg/ft^2, ppm, µg/g). Depending on the size of the sample or sample area, some mathematical calculations may need to be performed to convert to the appropriate units. Selecting a laboratory that will perform this calculation for

you will save valuable time and reduce the possibility of mathematical errors. **Note:** Even if a laboratory performs this calculation, it is still a good idea to spot check the math.

- **Will the laboratory accept composite samples?** If you intend to take composite samples, make sure that the laboratory is able to analyze composite samples.


Chain-of-Custody
Documents each person who handles sample
Ensures samples are not lost or tampered with
Included on sampling form
Your responsibility to maintain

Chain-of-Custody

It is important that samples are not tampered with or lost before or during the analysis process. To trace the path of the sample, you should establish a "chain-of-custody." This simply means that every person who handles the sample must sign and date a form.

Discussion. Ask the trainees who they think would need to sign a chain-of-custody form. Have them list the people. Then review any of the people they missed as listed below.

Who is in the chain-of-custody? The people in the chain-of-custody may include the:

- Lead sampling technician
- Technician's supervisor
- Individual packing the samples for shipment
- Individual picking-up and shipping the samples (maybe)
- Individual receiving the shipment at the laboratory
- Technician performing the laboratory analyses
- Lab technician's supervisor

Maintaining the chain of custody. You are responsible for ensuring that the chain-of-custody is maintained from the time you take the samples until you receive the sampling results from the laboratory.

- Generally, space for documenting the chain-of-custody is included as part of the sample collection form. There should be enough space for each individual handling the sample to sign

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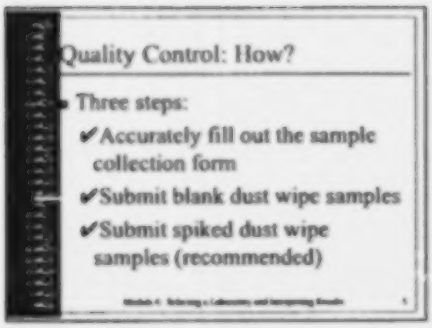
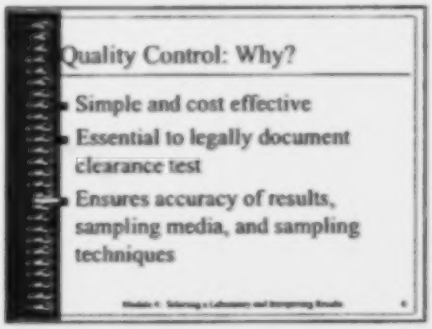
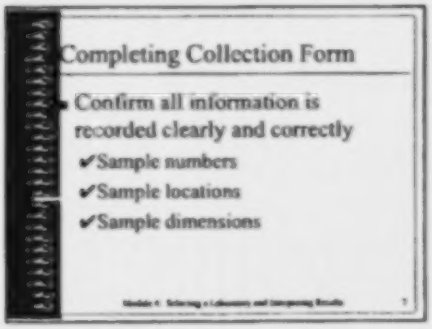
and date the form – 5 to 7 lines should be sufficient.

- Some laboratories maintain internal chain-of-custody forms. You should have learned about this when asking the laboratory about their quality control procedures. If so, the laboratory should provide you with a copy of the internal chain-of-custody form in addition to your completed form.
- You should also keep a copy of any shipping or mailing forms documenting when the samples were sent to the laboratory.


Quality Control: How?
Three steps:
✔Accurately fill out the sample collection form
✔Submit blank dust wipe samples
✔Submit spiked dust wipe samples (recommended)


Quality Control: Why?
Simple and cost effective
Essential to legally document clearance test
Ensures accuracy of results, sampling media, and sampling techniques



Quality Control

Lead sampling and analysis requires a great deal of care and precision by both you and the laboratory. There are three steps you should take to help control the quality of the lab results.

- Fill out the sample collection form completely and accurately.
- Submit blank samples with dust wipe samples.
- Submit spiked samples with dust wipe samples (recommended).

Why should you take these steps? These steps are simple, cost effective ways to control quality. To ensure your samples are as accurate as possible, quality control activities should be performed as part of each sampling inspection. Performing these activities is essential to document the accuracy of the laboratory, sampling media, or your sampling techniques.

Completing the sample collection form. In Module 3, we described how to clearly and accurately record sample information on the collection form. Before you send the samples to the laboratory, you should check your sample collection form to confirm that all of the following information is recorded clearly and correctly.

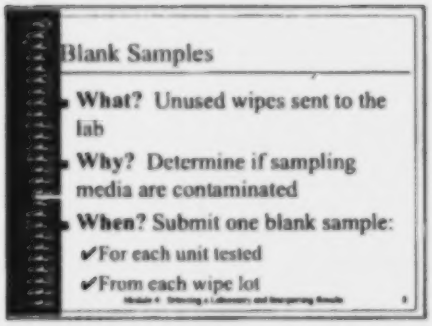
- **Sample numbers.** Samples should be numbered sequentially, in the order you took them. (Except for spikes and blanks which are discussed below.)
- **Sample locations.** These should be precise. For example, "left window on back wall in

master bedroom" is better than "bedroom window".

- **Sample dimensions for dust wipe samples.** As discussed in Module 3, these dimensions are extremely important and should be recorded to the nearest 1/8 of an inch.

After completing the form, it is essential that you keep a copy for your records.

Blank Samples


Blank Samples
What? Unused wipes sent to the lab
Why? Determine if sampling media are contaminated
When? Submit one blank sample:
✔For each unit tested
✔From each wipe lot

Blank samples are new, unused wipes that are sent to the laboratory to determine if the sampling media are contaminated. Because you should prepare blank samples on every job, it is a good idea to factor the costs associated with these samples into your fee.

Discussion. Ask students why wipes might be contaminated. Answers include technician error, laboratory error, or bad wipes.

Submitting blank samples is important to test the accuracy of your sampling techniques, the sampling media, and the laboratory's analysis.

Preparing blank samples. You should prepare blank samples in the same manner as other dust wipes.

- Prepare blank samples at the end of a job - after collecting all of your dust wipe samples.
- Remove a new wipe from the container with a new glove, shake the wipe open, and refold it as you would if you were taking a dust sample.
- Insert the unused wipe into a sampling container without touching any surfaces.

Labeling and submitting blank samples. Blank samples should be labeled so you can identify them but the lab cannot. Do not label blank samples as "blank."

- Give the sample a fictitious number that looks like your other sample numbers and provide a fictitious sample location and measurements to the lab.
- Keep notes in your records identifying blank sample number.

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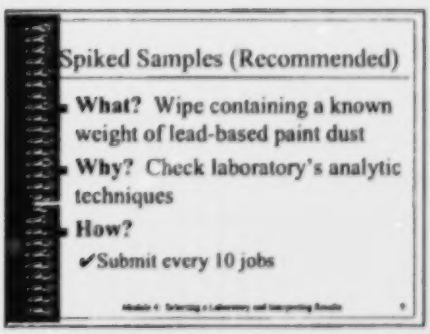
- Submit one blank sample for each unit sampled. Additionally, one blank should be included from each wipe lot used to ensure that the lots are not contaminated. The wipe lot number is usually found on the bottom of the wipe container.

Interpreting blank samples. If the laboratory detects more than 10 µg/wipe, one of three errors may have occurred:

- The dust wipes were contaminated before you began using them;
- You contaminated the wipes during your sampling; or
- The laboratory contaminated them during the analysis.

If the blank sample is contaminated, then the data should not be used and the unit in question should be re-sampled.

Spiked Samples (Recommended)


Spiked Samples (Recommended)
What? Wipe containing a known weight of lead-based paint dust
Why? Check laboratory's analytic techniques
How?
✔Submit every 10 jobs

Spiked samples are used to ensure adequate quality control of the digestion process at the laboratory. Submitting spiked samples is optional. A spiked sample is a dust wipe sample that contains a **known** weight of lead-based paint dust, measured to the nearest 0.1 µg of lead dust. In general, wipes should be spiked with between 25 µg and 1,000 µg of lead-contaminated dust. Laboratories can usually prepare spiked wipes upon request. You should have learned about this when asking the laboratory about spiked samples.

Discussion. Ask students why they should submit a spiked dust wipe to the laboratory if they already know the amount of lead it contains. (Answer: to see if the lab reports back accurate results.)

The spiked wipes are sent to the lab to see if they report back accurate results.

Labeling and submitting spiked samples. You should label spikes as any other sample so the laboratory cannot identify them. However, it is essential that you keep a record of which samples are spikes. Do not label spiked samples as "spike."

- Give the sample a fictitious number that looks like your other sample numbers and provide a

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fictitious sample location and measurements to the lab. It is a good idea to record the spiked sample as a floor sample with a measurement of 1 ft^2 to facilitate future calculations.

- Keep notes in your records identifying the spiked sample.
- Submit one spiked sample the first time you use a laboratory followed by 1 spike for every 10 dwelling units tested.

If you plan on using spiked samples, you should incorporate their cost into your fee, remembering that one spike is submitted for every 10 dwelling units tested.

Interpreting spiked samples. When you get the results back from the laboratory, compare the spiked sample results to their known lead concentrations.

- For the laboratory results to be accurate, the measured sample loading must fall within 80 to 120 percent of the true value.
- If the sample area was recorded as 1 ft^2, you can compare the spiked sample lead dust loading directly to the laboratory result.
- For example, if loading is 100µg and the sample area was recorded as 1 ft^2, the laboratory must report results between 80 $\mu g/ft^2$ and 120 $\mu g/ft^2$.

Reference Materials. Refer students to **Attachment 4-B**, a worksheet for interpreting spiked dust wipe samples.

- If this is not the case, immediately submit another spike in your next shipment to the lab.
- If this second spike also fails the laboratory results, all of the results must be considered invalid. Before you consider finding a new laboratory to perform the analyses, you should discuss this with the laboratory who must take corrective actions.

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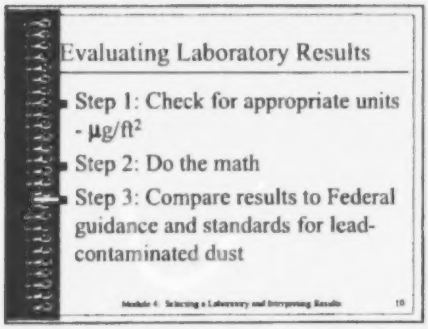
Interpreting and Evaluating Laboratory Results

When you receive the results from the laboratory, you will need to interpret them to determine if lead-contaminated dust is present. This section of the module describes what constitutes lead-contaminated dust and the process used to evaluate the sample results.

Specifically, you will need to:

- Evaluate the laboratory results and convert them, if necessary.
- Compare the results to the Federal or state standards.

Reference Materials. As you talk through this process, refer to **Attachment 4-C,** which provides a model of laboratory results.


Evaluating Laboratory Results
Step 1: Check for appropriate units - µg/ft²
Step 2: Do the math
Step 3: Compare results to Federal guidance and standards for lead-contaminated dust

Evaluating Laboratory Results

To compare the laboratory results to Federal standards for lead contaminated dust you may need to take the following three steps:

1. Check that the laboratory results are reported in appropriate units - $\mu g/ft^2$
2. Do the Math.
   - ➢ If the laboratory gave results in the appropriate units, check the laboratory's math.
   - ➢ If necessary, convert the result to appropriate units.
3. Compare the results to Federal guidance and standards for lead contaminated dust. **Note:** These standards are interim guidance. The numbers may change.

Evaluating Dust Wipe Sampling Results

Here is <u>how</u> we implement the above steps for dust wipe samples.

- **Step 1: Checking the units.** Laboratories should always report the weight of lead found in your sample in micrograms per square foot ($\mu g/ft^2$). Whenever you receive results from a

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lab, make sure the results are provided as $\mu g/ft^2$ and not μg.

Discussion. Understanding the units. Ask the students if they are familiar with the concepts of micrograms and square feet. If not, write the symbols on a flip chart and explain that:

- A microgram is a very small unit of weight. There are one thousand micrograms in one milligram. A penny weighs two grams. To get a microgram you would have to cut a penny into 2 million pieces. Also, one grain of sand generally weighs approximately one microgram. The symbol for a microgram is "μg."
- A square foot is a measure of area. One square foot is equal to an area that has a length of one-foot (12 inches) and a width of one-foot (12 inches). The symbol for a square foot is "ft^2."

Step 2: Doing the math. Even if the laboratory provides the results of the lead analysis in $\mu g/ft^2$, it is a good idea for you to check the laboratory's calculations. This process generally involves two steps and is described in **Attachment 4-D**. It is important to do the math because:

- The laboratory could have used the wrong dimensions when converting the sample area to $\mu g/ft^2$. For example, they may assume that the sample area was one ft^2 when the area was actually larger or smaller.
- Sometimes laboratories use computers that calculate $\mu g/ft^2$ using rounded numbers. Depending on the level of accuracy and the degree of the rounding, this can lead to errors.

Reference Materials. Refer students to **Attachment 4-D**, a worksheet for performing the necessary mathematical calculations to check the laboratories math.

Step 3: Compare the results to the Federal guidance/standards. Once you have made the necessary conversions, you can compare the laboratory results to the appropriate Federal guidance/standards. Individual standards have been developed for lead-contaminated dust on floors, interior window sills, and window troughs. It

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is important to recognize that the levels for lead-contaminated dust are different for these three surfaces. If your laboratory results report lead concentrations to be above the levels indicated in the guidance/standards, this indicates lead-contaminated dust.

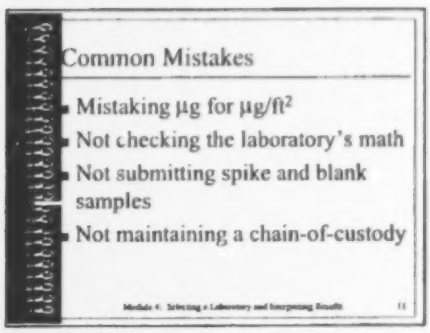
Reference Materials. Refer students to the **Field Guide** for a summary of the Federal guidance and standards. See the shaded boxes listing the guidance/standards at the bottom of the three pages describing the sampling protocols. Note that there are different guidance and standards for:

- ✓ HUD and EPA
- ✓ Different surfaces

Activity. Reference Materials. Refer students to **Attachment 4-E** for the exercise on interpreting lab results.

1. Have students work individually to complete the exercise. (5 minutes)
2. Debrief the exercise as a group and give the correct answers. (5 minutes) See **Appendix E** for the answers.
3. After the exercise, review common mistakes, as described below.

Common Mistakes and How to Avoid Them


Common Mistakes
Mistaking µg for µg/ft²
Not checking the laboratory's math
Not submitting spike and blank samples
Not maintaining a chain-of-custody

Listed below are some common mistakes you might make while performing any of the activities listed above.

Activity. You should review these mistakes with the students and ask if they can identify any other mistakes they might make while performing the described activities. For any potential mistakes, make sure you discuss both the mistake and the proper way to perform and activity.

- **Failing to record measurements accurately on the form.** As shown in *Module 3* (Dust Wipe Sampling), a small error in measurement can produce an incorrect sampling failure. Failing to accurately record measurements can result in similar errors.

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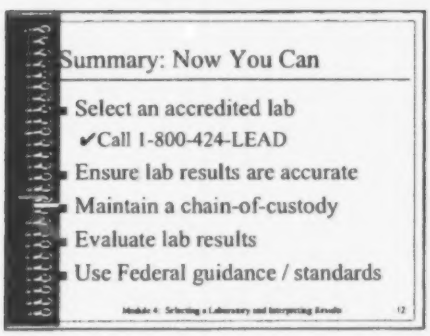
- **Mistaking the units.** One common mistake is using the wrong units of measurement. When the results come from the laboratory, check whether they are provided in µg or µg/ft^2. If they are in µg, you must convert them to µg/ft^2. Some laboratories will do these conversions for you, however it is always a good idea to check a laboratory's calculations.
- **Failing to check the laboratory's math.** Laboratories can make errors when converting results to µg/ft^2. Check the laboratory's math to ensure the calculations were done correctly.
- **Failing to submit spike and blank samples.** Another common mistake is not submitting spikes and blanks. Without these mechanisms, you have no way of verifying if the laboratory results were accurate, if the sampling media were uncontaminated, or if you used good sampling techniques. Although submitting spikes and blanks is optional, it is recommended that you submit one blank sample for every unit sampled and one spiked sample for every 10 units.
- **Failing to maintain the chain-of-custody.** The chain-of-custody form must be maintained from the time you take the dust wipe sample until you receive the laboratory results. This is your only mechanism to ensure that the samples were not contaminated, tampered with, or lost during the analysis process. Additionally, a documented chain-of-command is essential for a result to have any kind of legal standing.



Summary of Module 4

In this module you learned to submit samples to a laboratory for analysis, check and interpret the laboratory results, and determine if the unit tested has lead-contaminated dust above the Federal standards.

Discussion. Ask students whether they can now do the activities listed in the objectives:

- Select a reliable, accredited laboratory and explain why proper selection is important.

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- Describe the steps they will take to ensure that the laboratory results are accurate and that the sampling media were not contaminated.
- List the important steps to ensure samples are not contaminated, tampered with, or lost – "maintaining a chain-of-custody."
- Evaluate the adequacy of laboratory results and identify missing data or a need for more testing.
- State the Federal guidance and standards for lead-contaminated dust.

Student Materials for Module 4

Student materials will include:

- Copies of trainer slides
- **Attachment 4-A**: Questions to Ask Laboratory
- **Attachment 4-B**: Worksheet for interpreting spiked samples
- **Attachment 4-C**: Model of laboratory results for dust sampling
- **Attachment 4-D**: Worksheet for performing mathematical conversions for dust sampling
- **Attachment 4-E**: Exercise: Interpreting Lab Results (**Note**: Answers to this exercise can be found in **Appendix E**.)

Attachment 4-A: Questions to Ask Laboratory

♦ Is the laboratory recognized by NLLAP?	All samples must be analyzed by an NLLAP laboratory. You can contact the National Lead Information Center (NLIC) Clearinghouse at 1-800-424-LEAD for an up-to-date list of NLLAP-recognized laboratories. Even after selecting a laboratory, you should check the laboratory's accreditation every six months.
♦ What is the detection limit of the methodology used by the laboratory?	The detection limit is defined as the level below which the laboratory cannot report an accurate level of lead. For dust wipe sampling results to be accurate, the detection limit must be 10 $\mu g/ft^2$ or lower. It is important that the laboratory report its results in either micrograms (μg) or micrograms per square foot ($\mu g/ft^2$).
♦ What is the turnaround times for sample analysis?	Because the occupants often cannot occupy the units until sampling is complete, the laboratory turnaround time is important. Labs usually provide results within 1 to 3 days. A faster turn around time allows you to be more responsive to your client but may cost more money.
♦ What is the cost per sample?	You should be able to get your samples analyzed for under $7 to $15 per sample. However, prices can vary depending on how quickly you want the results. A 6-hour turn around will cost more than samples analyzed over a few days. You should also be wary that low laboratory costs that may be indicators of poor lab work.
♦ Will the laboratory provide sampling materials?	Many laboratories will provide you with all of the materials necessary to perform sampling. Sampling materials provided will likely include wipes, gloves, templates, tubes for submitting the samples to the laboratory, necessary sample collection forms, and overnight mailing envelopes. You may want to select a laboratory that provides these materials because laboratory-supplied materials and forms can help minimize potential errors in the analysis and record keeping.
♦ Does the laboratory supply spiked dust wipe samples?	In addition to the sampling materials, some laboratories will supply you with spiked dust wipe samples. Spikes are dust wipes contaminated by a laboratory with a known weight of lead-based paint dust, measured tot he nearest 0.1μg of lead dust. They are used to ensure adequate quality control of the digestion process at the laboratory. Although submitting spiked samples is optional, they are useful in determining if a laboratory reports back accurate results. If you decide to submit spiked samples, it is important that they are obtained from the laboratory so the sampling materials are consistent with the other wipes and to ensure the laboratory can accurately digest the wipe.
♦ Does the laboratory perform all the necessary mathematical calculations?	The Federal guidance is provided in $\mu g/ft^2$. Depending on the size of the sample or sample area, some mathematical calculations may need to be performed to convert the sample area to one square foot. Selecting a laboratory that will perform this calculation for you will save valuable time and reduce the possibility of mathematical errors. Note: even if a laboratory performs this calculation, it is still a good idea to spot check the math.

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Attachment 4-B: Worksheet for Interpreting Spiked Dust Wipe Samples

When you get the results back from the laboratory, compare the spiked sample results to the known lead concentrations. For the laboratory results to be accurate, the measured sample loading must fall within 80 to 120 percent of the true value. Recording the spiked sample area as 1 ft^2 will facilitate this process.

You will need to perform four separate calculations to ensure that the spiked sample falls within 80 to 120 percent of the true value:

- Calculate the lead loading of the spiked sample;
- Calculate 80 percent of the true value – lower bound;
- Calculate 120 percent of the true value – upper bound; and
- Compare these numbers to the analysis results.

1. Write down the true lead loading contained in spiked sample (µg).	True value: _____ µg
2. Calculate the lower limit (80% of true value). Multiply the true value (from[1] above] by 0.8.	Lower limit: _____ µg × 0.80 = _____ µg
3. Calculate the high limit (120% of true value). Multiply the true value (from [1] above) by 1.20.	High limit: _____ µg × 1.20 = _____ µg
4. Write down the results you received from the laboratory analysis.	Laboratory results: _____ µg
5. Compare laboratory results with the low and high bounds for the analysis. Does the laboratory result fall between the lower and high limits?	Lower limit [2]: _____ µg Laboratory [4]: _____ µg High limit [3]: _____ µg

Does the spike pass or fail?

- **Pass:** laboratory results fall within 80 percent to 120 percent of the true value
- **Fail:** laboratory result do NOT fall within 80 and 120 percent of the true value
  - Submit another spike in your next shipment to the lab.
  - If this second spike also fails the laboratory results, all of the results must be considered invalid and you should consider finding a new laboratory to perform the analyses.

Attachment 4-C: Model of Laboratory Results

DUST SAMPLING RESULTS FORM

Date of clearance:	8/5/99
Clearance Technician:	Joe Smith
Client:	Sally Jones
Property address:	78 East Main St., Apt. A Hammond, IN 89898

Sample #	Location	Surface	Dimensions of sample area	Total µg Lead	µg/ft²
98-1	Upstairs large bedroom	Floor	12 × 12	23	23
98-2	Upstairs large bedroom	Front facing int. window sill	24 × 3.0	10	20
98-3	Upstairs small bedroom	Floor	12 × 12	200	200
98-4	Upstairs small bedroom	Side facing int. window sill	24 × 3.0	29	58
98-5	Kitchen	Floor	12 × 12	12	12
98-6	Kitchen	Window above sink int. sill	24 × 3.0	211	422

Attachment 4-D: Worksheet for Performing Mathematical Conversions for Dust Samples

Unit of Measurement	Symbol	Unit of Weight	Symbol
Inches	in	Micrograms	µg
Square inches	in^2	Micrograms per square foot	$µg/ft^2$
Feet	ft		
Square feet	ft^2		

1. Convert the sample area to square feet (ft^2)

If the area you sampled was not a square foot, you will need to convert it to this dimension. One foot equals 12 inches, and one square foot equals 144 square inches.

- Record the sample area in inches (in) as opposed to feet (ft).
- Convert the sample area to square inches (in^2). If you have a decimal, round the number to three decimal places.
- Divide the square inches by 144 to get square feet (ft^2). If you have a decimal, round the number to three decimal places.

Dimensions of sample area in inches (in)	Length = _____ in Width: _____ in
Multiply length times width to calculate et the area in square inches (in^2)	_____ in × _____ in = _____ in^2
Divide the area in square inches (in^2) by 144 to calculate the area in square feet (ft^2).	_____ in^2 ÷ 144 = _____ ft^2

2. Convert the results to micrograms per square foot ($µg/ft^2$)

After you have converted the sample area to square feet, you need to find the amount of lead dust contained in that area. The micrograms per square foot ($µg/ft^2$) describes the quantity of lead dust contained in a one square foot area.

- Divide the lead concentration (µg) by the area (ft^2).

Dimensions of sample area in square feet (ft^2)	Area = _____ ft^2
Quantity of lead in micrograms (µg)	Lead = _____ µg
Divide micrograms (µg) by square feet (ft^2) to calculate micrograms per square foot ($µg/ft^2$)	_____ µg ÷ _____ ft^2 = _____ $µg/ft^2$

Attachment 4-E: Activity – Interpreting Laboratory Results

- **Instructions:** The purpose of this activity is to test your ability to verify the results received from the laboratory, compare these results to the clearance guidance levels, and interpret the results. Using the following excerpt from a Dust Sampling Results Form, check the laboratory's calculation of the weighted lead-dust sample. (Note: the numbers used in this exercise have been simplified to facilitate calculations).

Sample #	Location	Surface	Dimensions of Sample Area (ft^2)	Total Lead (µg)	µg/ft^2
92-1	Upstairs bedroom	Floor	1.00	23	23
92-2	Upstairs bedroom	Interior window sill	0.5	150	300
92-3	Kitchen – front window	Interior window sill	0.5	260	130

1. Check the results (µg Lead/g) for each sample. If the results are incorrect, provide the correct results in µg Lead/ft^2.

2. After verifying the laboratory's results, compare these results to the appropriate clearance guidance. Did the individual samples pass or fail the clearance test?

EPA Guidance for Lead-Contaminated Dust
♦ Floors: 100 µg/ft^2
♦ Interior window sills: 500 µg/ft^2
♦ Window trough: 800 µg/ft2

92-1: Result: _____ Clearance Guidance: _____ Pass or Fail? _____

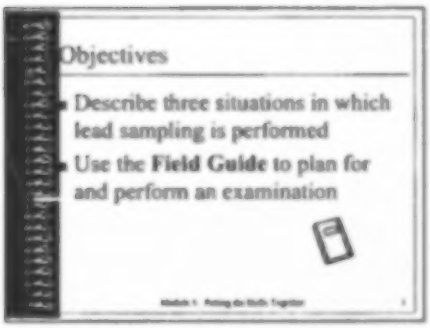
92-2: Result: _____ Clearance Guidance: _____ Pass or Fail? _____

92-3: Result: _____ Clearance Guidance: _____ Pass or Fail? _____

Module 5: Putting the Skills Together (60 minutes)

This module will outline the steps a lead sampling technician must take from start to finish when conducting an examination. It will differentiate among the different types of examinations, including post-renovation clearance examinations, HUD-required clearance examinations, and other lead sampling examinations.

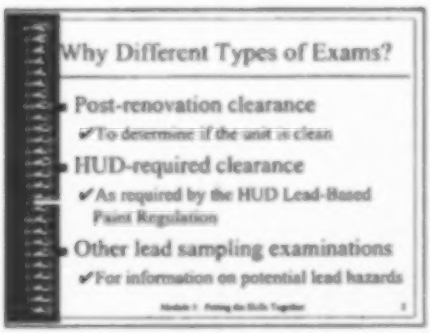
This module includes an exercise (**Attachment 5-B**) to help practice implementing the protocols.


Objectives
Describe three situations in which lead sampling is performed
Use the Field Guide to plan for and perform an examination

Objectives

By the end of this module, students will be able to:

- Describe three situations in which lead sampling is performed.
- Use their **Field Guides** to plan for and perform an examination appropriate to that particular situation.


Why Different Types of Exams?
Post-renovation clearance
✔To determine if the unit is clean
HUD-required clearance
✔As required by the HUD Lead-Based Paint Regulation
Other lead sampling examinations
✔For information on potential lead hazards

Why are There Different Types of Lead Sampling Examinations?

Now that you have learned how to perform visual assessments, take dust wipe samples, and analyze the results, you have the skills you need to perform lead sampling examinations in people's homes. Before you perform an examination, however, you need to know some protocols for putting these skills together.

Lead sampling can be performed for various reasons. Depending on the situation, different actions are appropriate. To understand the different situations, it helps to think of them in three categories:

- **Post-renovation clearance.** After renovation or remodeling, it is appropriate to perform clearance in the work site to confirm that the dwelling unit was adequately cleaned and that the renovation work has not created any hazardous conditions that might cause lead poisoning. In this case, we rely on dust wipe sampling to tell us if lead-contaminated dust was created by the work. (**Note:** Remodeling includes surface preparation for repainting

work. Repainting requiring surface preparation should follow these guidelines.)

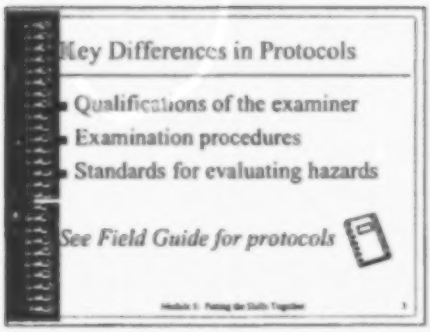
- **HUD-required clearance.** HUD's regulation on lead hazard evaluation and reduction in HUD-associated housing requires clearance after lead hazard reduction activities are performed. These clearance examinations are affected by specific HUD regulations. (24 CFR 35)
- **Other lead sampling examinations.** There are other situations in which a resident, property owner, or potential dwelling purchaser may want to find out if hazardous conditions exist in a dwelling unit. (For example, a pregnant woman may want to find out if her home has potential lead hazards that could affect the health of her child. Or, a property owner may want to perform dust wipe sampling before unit-turnover to ensure that the rental unit is free of potential lead hazards for its next tenants.) Procedures for these more general-purpose lead sampling examinations allow for the flexibility of the client's concerns.

Reference Materials. For more guidance on Federal regulations that may affect lead sampling see the **Appendix A** to this manual. **Note:** States and Indian Tribes may add their own regulations to the Appendix.

What are the Differences in the Protocols?

Reference Materials. Refer students to the **Field Guide**. It provides additional detail on each type of examination. As you look at these you will notice some differences.

Discussion. Ask students to point out some of the differences. Explain the nature of the differences. Do not go into detail but provide the general rationale.



Some differences include the following:

- **The qualifications of the examiner.** Because HUD-required clearance is needed to meet regulatory requirements, the standards for the technician performing the clearance are higher than for voluntary examinations.

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- **Procedures for sampling.** The procedures are related to the purpose of the exam. For example, for post-renovation clearance, the emphasis is on the work site because we want to ensure that the work did not create any lead-contaminated dust and debris. HUD-required and other clearance exams tend to be aimed at establishing the condition of the entire unit and therefore test the entire dwelling unit.
- **The guidance used in evaluating the results.** At this time, HUD and EPA provide different thresholds for evaluating lead-contamination.

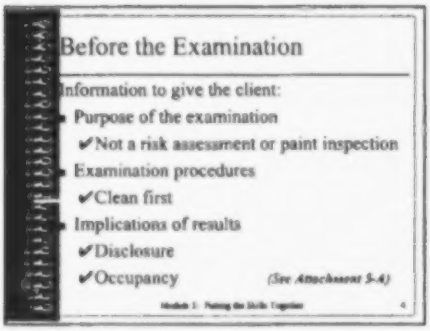
What Does this Mean for Each Lead Sampling Examination?

The rest of this module walks you through each type of clearance examination. It highlights:

- Steps to take **before** doing the examination. These steps apply to all three types of examinations; and
- The procedures for doing each type of clearance examination.

Steps to Take Prior to the Examination

Discussion. Ask participants to describe the steps they would take to prepare for any job. Then review the following points.



Information to Give to the Client

Your first contact with the client will probably be over the phone. The client may not know much about lead sampling exams. Use this initial contact to explain the examination's purpose and procedures.

The client needs to know the following things:

- **The purpose of the examination.** The clearance or lead sampling examination identifies some conditions that can cause lead exposure, including lead-contaminated dust. It is not to be confused with a risk assessment or a paint inspection (*as described in Module 1*).

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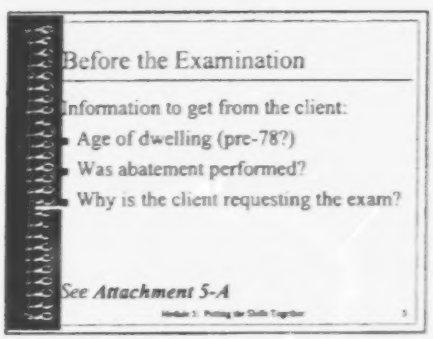
- **Examination procedures.** The client should understand the examination procedures. In particular, they need to know that:
  - They should clean the site before the exam takes place. Explain that clean-up involves a thorough, wet cleaning and vacuuming of the unit preferably with a HEPA vacuum. Generally, it should be done at least one hour after the work is done to give time for the dust to settle out of the air. *(Cleaning methods are further addressed in* ***Handout 2*** *provided in* ***Appendix B****.)*
  - They should allow at least one hour to pass after cleaning before the clearance examination occurs. This allows time for dust to settle after cleaning.
- **The implications of finding lead-contaminated dust.** Before hiring a lead sampling technician, clients should understand the implications of finding lead-contaminated dust in their homes. For example:
  - An area that is found to have lead-contaminated dust may require additional cleaning.
  - Federal disclosure laws require that if lead-contaminated dust is found during the examination, these results must be disclosed to future purchasers or tenants.

Background Information to Collect from the Client

Before you go to a site to begin a lead sampling examination, you need to collect some information from the client.


Before the Examination
Information to get from the client:
Age of dwelling (pre-78?)
Was abatement performed?
Why is the client requesting the exam?
See Attachment 5-A

Discussion. Ask participants what types of information they might like to have before they begin a job. Have them explain why they would want this information.

The information collected from the client will help you confirm that a lead sampling examination is appropriate and help you plan your on-site work.

Questions to ask include:

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- **When was the dwelling built?** If the unit was built after 1978, there is generally little need to perform a lead sampling examination. Lead-based paint was banned from residential use in 1978.
- **Was lead abatement conducted?** If so, this is not an appropriate job for a lead sampling technician.
  - Lead abatement jobs are designed to permanently control lead-based paint hazards and must be done by certified and trained abatement professionals.
  - Clearance after abatement must be done by a risk assessor or a paint inspector.
- **Why is the client requesting an examination?** The answer they give to this question will determine the protocol you use when conducting the examination.
  - Because remodeling/renovation recently occurred in the unit.
  - Because it is a HUD requirement.
  - For other reasons.

Reference Materials. See **Attachment 5-A** for a checklist of items to ask before any clearance examination.

What Next?

What you do next depends on the type of lead sampling exam being performed.

Next, we will go step by step through each type of examination and discuss the protocol for each one. The steps for each protocol are listed in the **Field Guide.**

Reference Materials. Go to the **Field Guide**. Talk through each of the protocols. This trainer manual provides detailed guidance on each type of examination. As you go through the procedures for each type of exam, refer the students to the summaries provided in the **Field Guide**. Remind them that they can use these later to remember these rules. There is no need to memorize the protocols.

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Post-Renovation Clearance

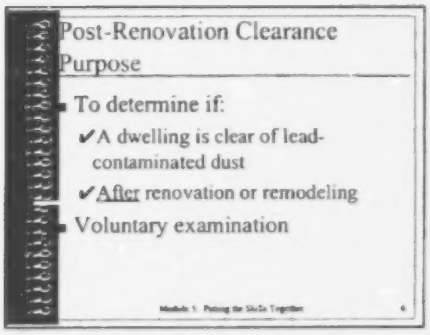
This section summarizes the steps involved in a post-renovation clearance examination.

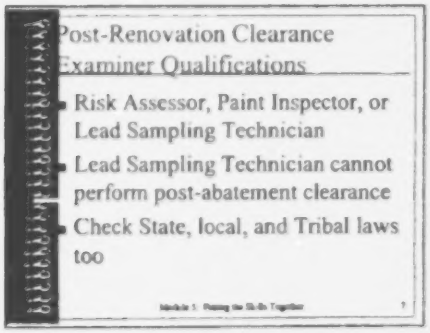
Reference Materials. Refer students to the summaries provided in their **Field Guide**. Talk through each of the steps in the process. As you talk through the process, make sure you highlight the following:

- The purpose of post-renovation clearance examinations
- Qualifications of the examiner
- Getting ready for the exam - pre-clearance cleaning
- Visual assessment - the implications of the visual assessment results
- Dust sampling - locations for dust sampling
- Analysis - guidance used for analyzing results
- Results – what to do if lead-contaminated dust is found

Allow students to ask questions about why the clearance examination protocol is established in this way. Use the guidance below to enhance your description and answers.

Note: Overhead slides are provided to guide the discussion below. You can choose to use them or to rely solely on the summary in the **Field Guide**.




Post-Renovation Clearance Examiner Qualifications
Risk Assessor, Paint Inspector, or Lead Sampling Technician
Lead Sampling Technician cannot perform post-abatement clearance
Check State, local, and Tribal laws too

Purpose of Post-Renovation Clearance

The purpose of post-renovation clearance is to determine if a unit is clear of lead-contaminated dust after renovation or remodeling. These activities can create lead-contaminated dust, so proper clean-up is critical. Clearance is the only way to tell if clean-up was effective. (**Note:** Remodeling includes surface preparation for repainting work. Repainting requiring surface preparation should follow these guidelines.)

Qualifications of the Clearance Examiner

To conduct a post-renovation clearance examination, the clearance examiner should be trained as a risk assessor, paint inspector, or lead

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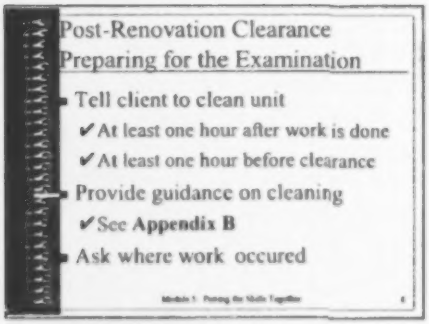
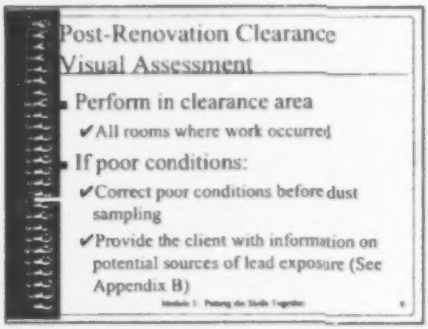
sampling technician. No certification is required unless state or local law requires it.


Post-Renovation Clearance
Preparing for the Examination
Tell client to clean unit
✔At least one hour after work is done
✔At least one hour before clearance
Provide guidance on cleaning
✔See Appendix B
Ask where work occured

Preparing for the Examination

To prepare, follow the procedures outlined earlier in this module and summarized on this slide. It is important to remember to:

- Make sure you encourage the client to clean the area at least one hour after the work is done and at least one hour before the clearance examination.
- Gather information from the client about where the work occurred so that you can identify the clearance area to be sampled.


Post-Renovation Clearance
Visual Assessment
Perform in clearance area
✔All rooms where work occurred
If poor conditions:
✔Correct poor conditions before dust sampling
✔Provide the client with information on potential sources of lead exposure (See Appendix B)

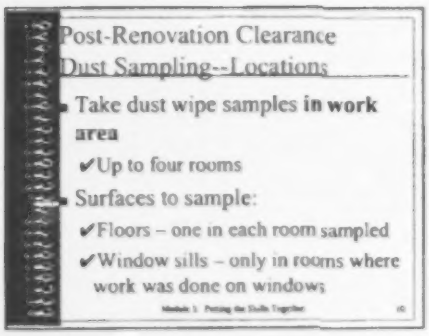
Performing the Examination

When you arrive on site, if possible, you should confirm the clearance area with the client. Then take the following steps:

1. Perform a visual assessment. Follow the protocol outlined in Module 2.

- If the visual assessment reveals visible dust, or paint chips/debris, the client should be advised to correct these conditions prior to continuing the examination.
- If the visual assessment reveals deteriorated paint, the lead sampling technician may indicate such information on the visual assessment form and the client should be informed that deteriorated paint represents a potential source of lead exposure.

Additional information for the trainer. The following discussion on where to perform dust sampling is very important. While Module 3 described how to perform dust sampling, it did not instruct participants where to take the samples.


Post-Renovation Clearance
Dust Sampling--Locations
Take dust wipe samples in work area
✔Up to four rooms
Surfaces to sample:
✔Floors – one in each room sampled
✔Window sills – only in rooms where work was done on windows

2. Perform dust sampling. Follow the protocol outlined in Module 3.

- Areas to sample include the rooms where work occurred (up to four areas).
- Surfaces to sample include:
  - Floors — in each room tested

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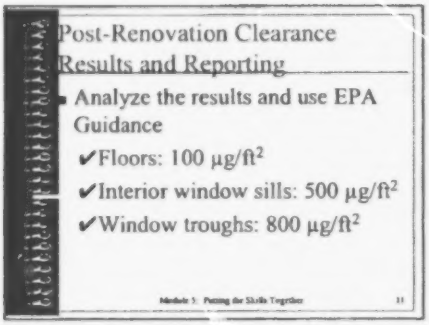
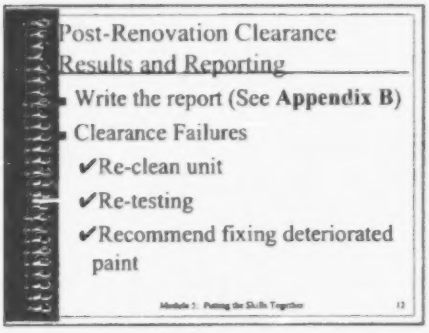

Post-Renovation Clearance
Results and Reporting
Analyze the results and use EPA Guidance
✔Floors: 100 µg/ft²
✔Interior window sills: 500 µg/ft²
✔Window troughs: 800 µg/ft²



➢ Interior window sills — in rooms where work was done on the windows (**Note:** It is optional in other cases).

Results and Report Writing

When analyzing the data, follow the guidance provided in Module 4. When writing the report and explaining it to the client, follow the guidance in Module 6.

1. Analyzing Data. Use the EPA guidance as your standard for evaluating sample results. These standards are:

- Floors: 100 µg/ft^2
- Interior window sills: 500 µg/ft^2
- Window troughs: 800 µg/ft^2

Note: These are interim guidance. These numbers may change. This current guidance is in the **Field Guide**.

2. Writing the report. Use the blank format provided in **Appendix B** for writing the report. (See **Appendix C** for a model report.)

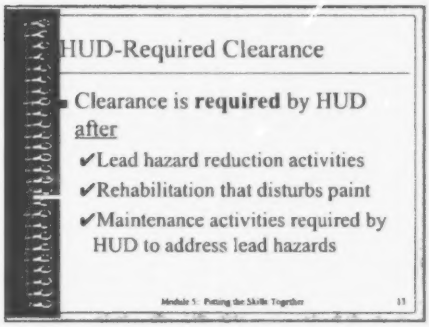
3. Clearance failures. If a unit fails the clearance examination, there are no requirements; however, the following is recommended:

- Reclean the areas represented by the sample that failed clearance. (For example, if a floor failed , re-clean the floors. If an interior window sill failed, re-clean interior window sills.) Ideally the whole unit should be recleaned.
- Conduct a second clearance examination.
- In addition, the lead sampling technician could recommend to repair any deteriorated paint that was identified. Use safe practices as described in **Handout 3** in **Appendix B**.
- If the problem persists, consider having a risk assessment conducted.

HUD-Required Clearance

HUD-required clearance looks much like a post-renovation clearance, however, there are some differences.

Cover the following general background on HUD-required clearance before addressing the protocol.

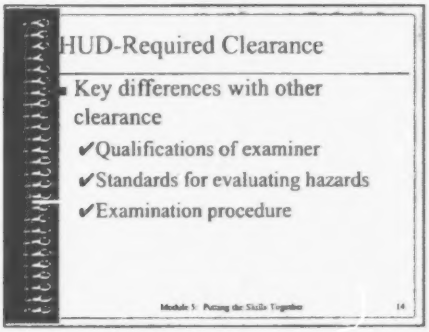

HUD-Required Clearance
Clearance is **required** by HUD after
✔Lead hazard reduction activities
✔Rehabilitation that disturbs paint
✔Maintenance activities required by HUD to address lead hazards
Module 5: Putting the Skills Together 13

When is Clearance Required by HUD?

The Department of Housing and Urban Development (HUD) published its regulation, at 24 CFR 35, addressing lead-based paint in Federally-owned and assisted housing. These rules affect public housing as well as private housing that receives HUD or other Federal assistance (for example, Section 8, HOME, Community Development Block Grant assistance, Federal mortgage insurance for multifamily properties, interest subsidies, Rural Housing Service assistance, etc). **Note:** The clearance inspector is not responsible for knowing when these requirements apply.

HUD requires clearance in pre-1978 residential dwellings that receive Federal financial assistance or are sold by the Federal government after:

- Lead hazard reduction activities are performed.
- Rehabilitation that disturbs painted surfaces is performed.
- Maintenance activities that are required under the HUD Lead-Based Paint Regulation to address lead hazards.



What are the Key Differences Between HUD-Required Clearance and Other Clearance Examinations?

There are a few new things we need to learn to understand how clearance examinations must be conducted for HUD-required clearance jobs. These differences address:

- The qualifications of the lead sampling technician;
- Standards used for evaluating hazards; and
- Clearance examination procedures.

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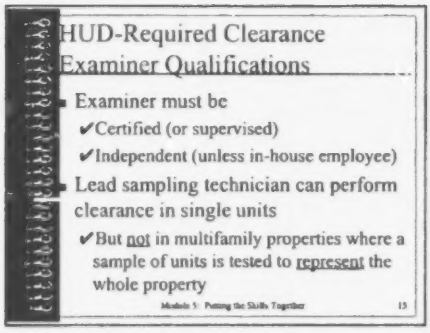
Each of these items is discussed in the following sections.

Reference Materials. Refer students to the **Field Guide.** Walk through the process. Remind students that it is the same general process as previously covered for post-renovation clearance. Highlight the following:

- The qualifications of the clearance examiner
- HUD Clearance Standards
- The clearance area
- Consequences of the visual assessment
- Sampling locations
- Clearance failures

Refer to the guidance below to describe the protocol and to answer the students' questions. Overhead slides are provided and can be used at the trainer's discretion. Remind students, they do not need to memorize this material as it is provided to them in summary table in their field guide.


HUD-Required Clearance Examiner Qualifications
Examiner must be
✔Certified (or supervised)
✔Independent (unless in-house employee)
Lead sampling technician can perform clearance in single units
✔But not in multifamily properties where a sample of units is tested to represent the whole property
Module 5: Putting the Skills Together
13

Qualifications of the Clearance Examiner

To meet HUD clearance requirements the lead sampling technician must **be certified or be under the supervision** of a certified risk assessor or paint inspector. In addition:

- A lead sampling technician can perform clearance only on single family dwellings or on individual dwelling units in multifamily properties. In multifamily dwellings where only a sample of units are being examined to represent the whole property, a certified paint inspector or risk assessor must oversee the work. A lead sampling technician is not qualified to conduct clearance following an abatement.
- The lead clearance examiner must be independent of the persons or entities performing the hazard reduction, rehabilitation, or maintenance work.
  - However, a property owner may use a qualified in-house employee to conduct clearance, provided such employee does not

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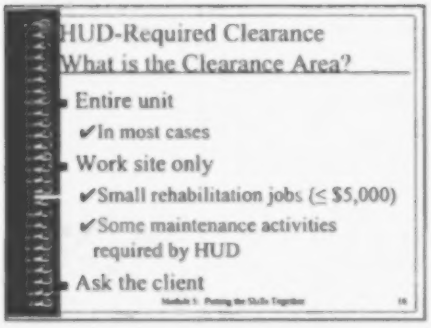
conduct clearance examinations of work in which he or she participated.

Procedures for HUD-Required Clearance

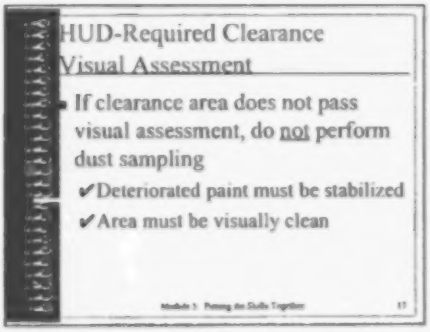
HUD has specific requirements regarding how the clearance examination is performed. The procedures are similar to those described for post-renovation clearance with some subtle differences in several areas. These are explained in the next few slides.



Defining the clearance area. The area in which the lead sampling technician will perform a visual assessment and dust sampling depends on the nature of the activity that preceded the clearance.

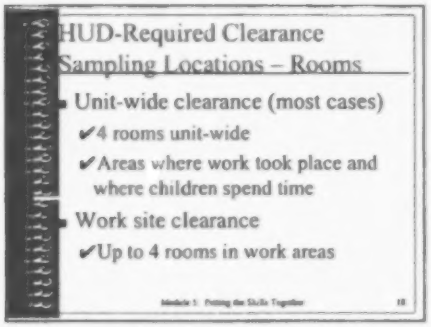
- **Unit-wide clearance.** For most jobs, the clearance area is the entire unit, interior and exterior. This means that the lead sampling technician must look at the following:
  - **Inside**: All rooms in the unit, regardless of whether work was done, and any common areas servicing the unit.
  - **Outside**: Exterior painted surfaces, the ground near the structure, and areas of bare soil.
- **Work site clearance.** In some cases, the clearance area is limited to the work area. These cases include small HUD-funded rehabilitation jobs (up to and including $5000 of assistance per unit) and maintenance work required by HUD's Lead-Based Paint Regulation to address hazards.

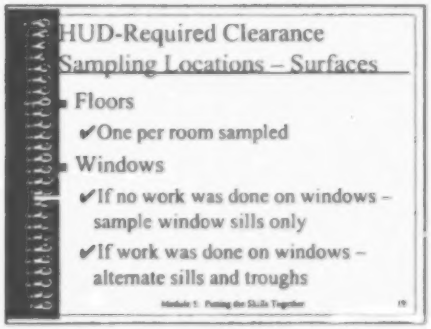
Note: The client is responsible for telling the clearance examiner the area that constitutes the work site.

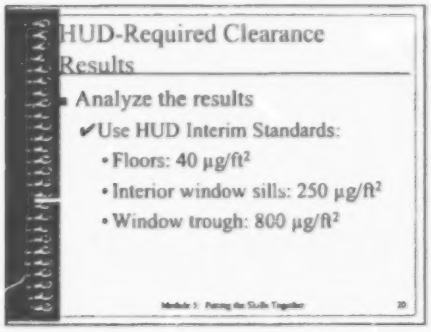

HUD-Required Clearance
Visual Assessment
If clearance area does not pass visual assessment, do not perform dust sampling
✔Deteriorated paint must be stabilized
✔Area must be visually clean

Consequences of the visual assessment. The HUD regulation requires that the unit pass a visual assessment prior to dust testing. Therefore:

- Dust and debris must be removed from the clearance area, including the exterior, before the clearance examiner proceeds with dust sampling.
- Any deteriorated paint must be stabilized to pass clearance.


HUD-Required Clearance Sampling Locations – Rooms
Unit-wide clearance (most cases)
✔4 rooms unit-wide
✔Areas where work took place and where children spend time
Work site clearance
✔Up to 4 rooms in work areas


HUD-Required Clearance Sampling Locations – Surfaces
Floors
✔One per room sampled
Windows
✔If no work was done on windows – sample window sills only
✔If work was done on windows – alternate sills and troughs


HUD-Required Clearance Results
Analyze the results
✔Use HUD Interim Standards:
• Floors: 40 µg/ft²
• Interior window sills: 250 µg/ft²
• Window trough: 800 µg/ft²

Additional information for the trainer. The following information on sampling locations is very important. Make sure you emphasize the locations, particularly the sampling of window troughs in rooms where work was performed on windows.

Sampling locations. When performing dust sampling in the clearance area, HUD specifies sampling locations that are slightly different from those described for post-renovation clearance. The main difference is the addition of **window troughs** to the areas sampled. The sampling protocol, including window troughs is described in **the Field Guide**.

- Areas to sample include the rooms where work occurred and areas where children spend time.
  - For work site clearance – up to four rooms where work occurred.
  - For unit-wide clearance – four rooms where work occurred or children spend time.
- Surfaces to sample include:
  - Floors — One in each room tested
  - Windows — One in each room tested. If work was done on windows, alternate between interior sills and troughs. If no work was done on windows, simply sample the interior sills.

Results: HUD Clearance Standards. Until EPA publishes its final rule on standards for lead hazards, HUD has its own interim standards for defining lead-contaminated dust. These standards must be used whenever a HUD-required clearance examination is performed. The standards are:

- Floors: 40 µg/ft²
- Interior window sills: 250 µg/ft²
- Window trough: 800 µg/ft²

Reporting. The clearance examination report described in Module 6 meets HUD requirements. It is critical that all reports for HUD-required clearance include all the information listed, including the results of the visual assessment.

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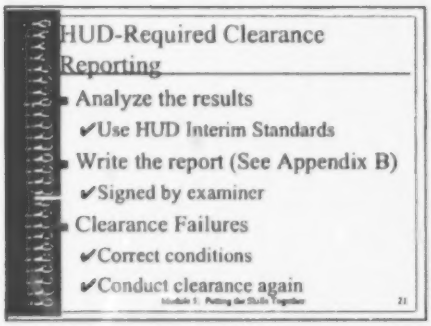

Additional information for the trainer. The clearance examination report provided by the lead sampling technician will be added to other information to create a HUD-required "Clearance Report" (distinct from the "clearance examination report"). The clearance report includes additional information about the work done on the property. The lead sampling technician may be asked to write the clearance report, but in such cases, must be provided all the necessary information. Alternatively, the client may use the clearance examination report to develop the full clearance report.

Clearance failures. If the clearance examination reveals unacceptable conditions – for example, they show deteriorated paint or lead-contaminated dust – those conditions must be corrected and reexamined by the lead sampling technician before the unit passes clearance. HUD requirements for re-cleaning and re-testing are as follows:

- Any areas represented by the sample that failed must be re-cleaned. For example, if a floor failed, all floors in the clearance area must be re-cleaned.
- However, any specific surfaces that were tested and passed do not have to be re-cleaned. If, in the example above, one floor sample failed and three passed, the three rooms where the floors passed do not need to be re-cleaned. **Note:** It is a good practice to clean everything again.
- When taking dust wipe samples for clearance again, do not sample the same locations as before. Since they were sampled before, the dust has already been removed.

- Deteriorated paint must be stabilized using appropriate practices. (See **Handout 3 in Appendix B** for guidance.)
- Owners of rental properties must inform the occupants of the results of the clearance examinations.

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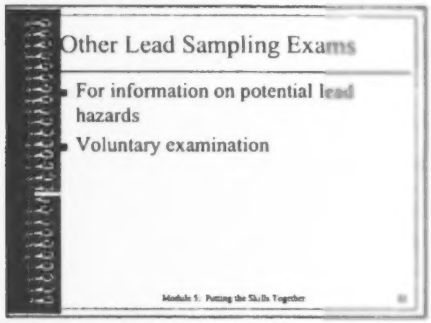


Other Lead Sampling Examinations

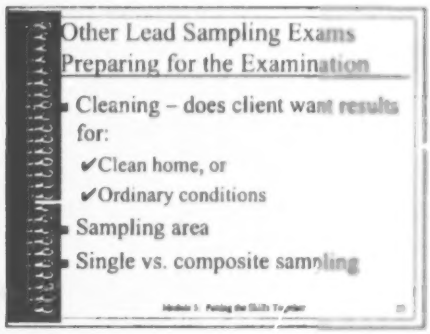
Other lead sampling examinations look much like post-renovation clearance; however, because these tend to be voluntary examinations for the purpose of finding out about lead hazards in the home, the protocols are more flexible. An ideal protocol would include the following steps.

Note: Adjustments to this protocol can be made at the request of the client based on their own concerns.

Reference Materials. This material may need to be taught quite briefly if time is short. In this case, refer students to the **Field Guide**. Emphasize that this is a voluntary clearance examination and therefore the protocol described here is recommended. Walk through the steps briefly. Use the information below to inform your description of the protocol and to answer students' questions. Then skip to the exercise provided as **Attachment 5-B**.

Examiner Qualifications

A trained risk assessor, paint inspector, or lead sampling technician can perform clearance in these situations, subject to state and local laws.



Preparing for the Examination

Provide appropriate information to client before the examination, such as:

- **Cleaning the unit.** Advise the client that the home is more likely to meet the federal standards if it is cleaned first. However, if the client's goal is to identify lead-contaminated dust in the home in its usual state, the unit should not be cleaned prior to the examination.
- **Sampling area.** Does the client want to sample the entire unit or just one particular area?
- **Pros and cons of single vs. composite samples.** Composite samples are less expensive but provide less specific information about the location of lead-contaminated dust.

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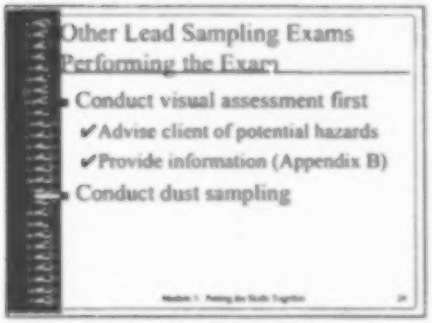
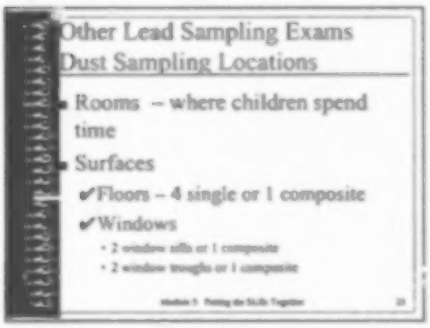
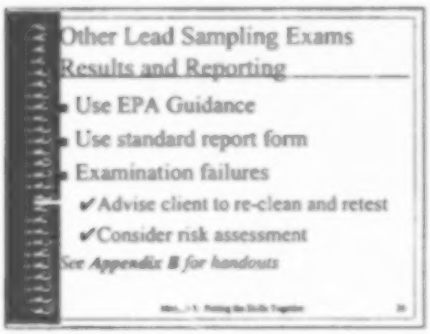



Other Lead Sampling Exams
Dust Sampling Locations
Rooms – where children spend time
Surfaces
✔Floors – 4 single or 1 composite
✔Windows
• 2 window sills or 1 composite
• 2 window troughs or 1 composite



Performing the Examination

Visual assessment. Perform a visual assessment. Inform the client of any of the following conditions — visible dust, debris/paint chips, or deteriorated paint. Suggest that these should be corrected prior to dust wipe testing.

Dust sampling locations. Perform dust testing in four rooms/areas. This testing may be done with single surface or composite samples.

- Appropriate areas include rooms where children are most likely to spend time — the living room, kitchen, playroom, and child's bedroom.
- Sample a floor in each area and alternate window sills and troughs.

Results and Reporting

Analysis. Use EPA guidance to analyze samples. See the **Field Guide**.

Report writing. Write the report following the format provided in Module 6.

Examination failures. In the event of that the sampling shows lead contaminated dust, advise the client to clean the unit, repair deteriorated paint (using the practices outlined in **Handouts 2 and 3** provided in **Appendix B**), and perform a second clearance examination. Alternatively, suggest the services of a risk assessor.

Exercise. This exercise allows students to apply the three protocols to different situations. Refer to **Attachment 5-B** for the exercise which includes three scenarios.

1. Divide students into at least three groups
2. Assign each group a scenario.
3. Allow each group 15 minutes to work on their scenario.
4. Have the groups report their answers to the whole group.

Answers are provided in **Appendix E.**

Student Materials for Module 5

Student materials include:

- Copies of trainer slides
- **Attachment 5-A**: Checklist — Preparing for the Job
- **Attachment 5-B**: Exercise

Attachment 5-A: Preparing for the Job – Checklist

INFORMATION TO PROVIDE THE CLIENT	
♦ Clean the unit prior to the lead sampling examination.	Units with dust and debris are unlikely to pass a lead sampling examination. Ideally, cleaning should take place at least one hour after any renovation work is completed to allow dust to settle out of the air. *(See Handout 2 in Appendix B for more guidance on appropriate cleaning methods.)*
♦ Wait one hour before clearance.	If the clearance is being done after renovation, remodeling, or hazard reduction work, the lead sampling technician should not take samples until one hour after the clean-up is complete.
♦ If the lab results show hazardous levels of lead in the dust further action is required.	If the lab results show hazardous levels of lead in the dust: ♦ Clean the unit and repair paint to address the hazards. In addition, the client may want to hire a risk assessor to do a more thorough evaluation of the unit. ♦ The client has a responsibility, under Federal law, to disclose any knowledge of lead-based paint or lead hazards to future purchasers or tenants of the unit (even if those hazards have been corrected).
INFORMATION TO COLLECT FROM THE CLIENT	
♦ Was the dwelling built after 1978?	If the unit was built after 1978, there is no reason to perform clearance. Lead-based paint was banned from residential use in 1978.
♦ Was lead abatement conducted?	If so, this is not an appropriate job for a lead sampling technician, except under the direct supervision of a certified risk assessor or paint inspector.
♦ Why is the client requesting this examination?	See Field Guide for appropriate protocol: ♦ Post-renovation clearance ♦ HUD-required clearance ♦ Other lead sampling

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Attachment 5-B: Exercise – Putting the Skills Together

For the following scenarios, answer these questions:

a. Are there additional questions you want to ask the client?

b. What protocol will you follow? (post-renovation clearance, HUD-required, or other sampling)?

c. Where will you conduct the visual examination? What will you look for?

d. Will you take dust wipe samples? In what rooms? On what surfaces?

1. You just received a call from Mrs. Green to perform an examination of her home. Mrs. Green tells you that her home was built in 1992. She has just had her kitchen and two bathrooms remodeled and she is concerned about that her home was properly cleaned after the remodeling was done.

2. The owner of Parkview Apartments asks you to do a clearance examination of a unit in his building. He tells you that the unit receives HUD Section 8 assistance and he just did some paint stabilization in the unit to meet HUD Housing Quality Standards. He says he needs to pass clearance before his tenant moves in.

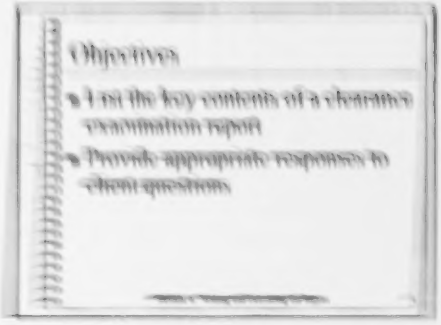
3. Mr. and Mrs. Johnson are moving into a new home. They have a two year old son and Mrs. Johnson is expecting a second child in three months. Before they move in, they want to make sure their home is safe for their children. They ask you to perform an examination of their home.

Module 6: Writing and Delivering the Report (30 minutes)

This module teaches students to prepare a complete clearance examination report and gives guidance on how to explain the sampling results to the client.

Because the most common type of report at this time is likely to be a clearance examination report, it is used it as the model report for this module.

The module is divided into two instructor-led activities. The first activity covers what information a clearance examination report should contain and describes what makes a report easy-to-read. The second activity explains how to respond to client questions.



Objectives

At the end of the module, students will be able to:

- List the key contents of a complete clearance examination report and describe ways to make the report easy to read; and
- Respond appropriately to questions that clients may ask upon receiving their report.

Contents of the Report

Activity # 1 (10 minutes). This activity uses a sample report to teach students the items that should be included in clearance examination reports and points out features that make reports reader-friendly.

Instructions:

1. Refer students to **Appendix C: Model Clearance Examination Report**.
2. Introduce the activity to the students. Explain that the purpose of the activity is to show them what items must be included in reports and ways to make the report easy to read for their non-technical clients.
3. Ask the class to use the report to answer the questions listed below. As a group, answer each question one at a time. Use slide 2 to present the questions to the group and check off each question as it is answered.

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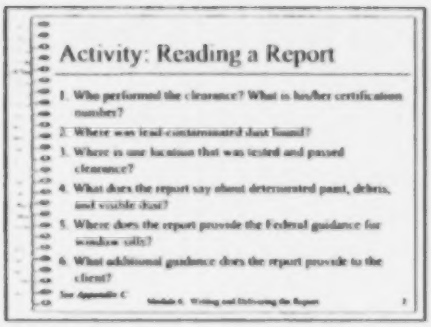
Correct each answer as necessary using the answers below. Make sure that you highlight the key point made by each question. Finally, refer students to **Appendix B** which includes a blank report form including useful factsheets that can be included in a report..



Activity: Reading a Report

1. Who performed the clearance? What is his/her certification number?
2. Where was lead-contaminated dust found?
3. Where is one location that was tested and passed clearance?
4. What does the report say about deteriorated paint, debris, and visible dust?
5. Where does the report provide the Federal guidance for window sills?
6. What additional guidance does the report provide to the client?

See Appendix C

Module 6: Writing and Delivering the Report 3

Questions to Answer

1. **Who performed the clearance examination? What is his/her certification number?**

   A: See the cover page. The lead sampling technician is Joe Smith and his certification number is IN 77777. **Key point:** This information is provided up-front on the cover sheet.

2. **Where was lead-contaminated dust found?**

   A: See the summary of results on the cover page. Lead-contaminated dust was found on a window and the floor of the small bedroom, on the window above the kitchen sink, and in the upstairs hallway. **Key point:** This information was provided in the summary results on the cover page and that clients will want to know where the hazards are right away.

3. **Where is one location that was tested but passed clearance?**

   A: See the results form that comes from the lab. Possible answers include:

   - Floor in the upstairs large bedroom.
   - Window sill in the upstairs large bedroom.
   - Kitchen floor.

   Key point: This information was provided on the "Dust Sampling Results Form" that came from the lab and was attached to the report.

4. **Does the report say anything about the presence of deteriorated paint, debris or visible dust?**

   A: See the visual assessment form. It shows that there is no debris, or dust because those conditions were corrected prior to the examination. In cases where there is deteriorated paint, the lead sampling technician has written that the client has said that the paint

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has been tested and found not to be lead-based paint. **Key point:** Such conditions should be corrected before clearance is done.

5. **Where does the report provide the Federal guidance for interior window sills?**

   A: See the section called "Understanding Your Report. The Federal guidance for window sills is 500 $\mu g/ft^2$ (micrograms per square foot)." **Key point:** It is important to document for clients what standards were used for their clearance test.

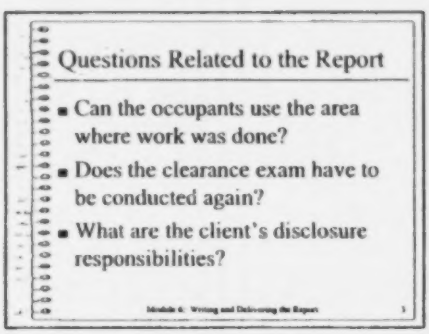
6. **What additional guidance does the report provide to the client?**

   A: The report includes factsheets to help answer client questions on potential sources of lead exposure, proper cleaning, monitoring paint, paint repair and frequently asked questions. **Key point:** These factsheets provide important guidance to the client and answer critical questions that they may have. These handout factsheets can be found in **Appendix B**. Encourage students to include them when writing reports.

Reference Materials. To close out the activity, walk quickly through the whole report, pointing out what is included. Refer students to **Appendix B** for a blank report form which includes copies of the handouts.

How to Deliver the Report

When delivering the report, the client will likely have questions about what the results mean and what they should do. This activity starts with a brief lecture on answers to the most pressing questions clients may ask. Following this, an activity will allow students to develop responses to questions that clients may ask after receiving their clearance examination report.


Questions Related to the Report
■ Can the occupants use the area where work was done?
■ Does the clearance exam have to be conducted again?
■ What are the client's disclosure responsibilities?

Pressing Questions

The following are questions a client is likely to ask if they fail the clearance examination.

Can the occupants use the area where work was done?

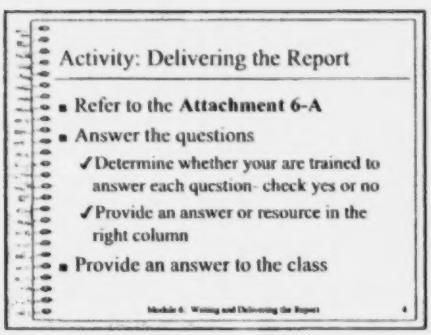
Failing the clearance examination indicates that lead-contaminated dust is present in the work area. Using this area puts the unit's occupants in danger of lead poisoning. HUD generally does not allow occupants to go into the clearance area until clearance is passed. In other cases, it is recommended that people, especially children, refrain from entering the clearance area. A proper re-cleaning to remove the lead-contaminated dust is necessary to remove the problem. A second clearance examination is recommended after cleaning, and prior to allowing access to the area where work was done.

Does sampling have to be conducted again?

A second sampling is strongly recommended to make sure that the dwelling is safe for occupants to return. (It is not required, except by HUD, as discussed in Module 5.)

What are the client's disclosure responsibilities?

It is the client's responsibility to inform future occupants or potential homebuyers of the results of the clearance examination. If a second clearance test shows levels below the guidance, the results of the first test must still be disclosed. The second test should also be disclosed to show that the problem has been addressed.


Activity: Delivering the Report
Refer to the Attachment 6-A
Answer the questions
✓Determine whether your are trained to answer each question- check yes or no
✓Provide an answer or resource in the right column
Provide an answer to the class

Activity # 2: Delivering the Report (10 minutes). To provide the most accurate and appropriate answers, lead sampling technicians must understand what the results of clearance do and do not indicate and what a lead sampling technician is qualified to recommend.

1. Refer students to **Attachment 6-A: Exercise: Answering Client Questions** in their student materials.
2. Call on individual students to read and answer each question. For each question, the student must first determine whether lead sampling technicians are trained to answer the question. If they are qualified to answer the question, students should provide the answer in the right

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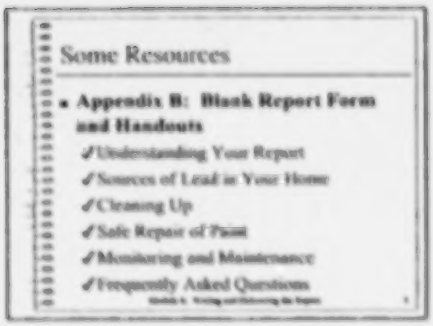
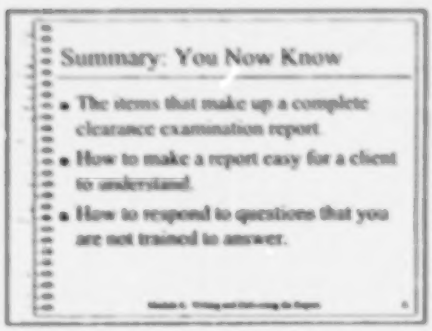
column. If they are not, they should suggest an appropriate response in the right column.

3. As each question is answered, point out incorrect answers or missing information. The answer sheet (included in **Appendix E**) provides complete answers for each question and points out special issues.
4. If there is time, point out the factsheets included in the sample report that is provided in **Appendix B**. Go over the last factsheet that includes frequently asked questions. Lead sampling technicians can refer clients to this information.




Summary: You Now Know
The items that make up a complete clearance examination report.
How to make a report easy for a client to understand.
How to respond to questions that you are not trained to answer.

Summary of Module 6

In this module, students learned:

- What items make up a complete report;
- What features make a report readable; and
- How to provide appropriate responses to client questions about their clearance examination.

Student Materials for Module 6

- Copies of trainer slides
- **Attachment 6-A**: Exercise: Answering Client Questions

Attachment 6-A: Exercise – Answering Client Questions

You have just given your client the clearance examination report and she has a lot of questions for you. You have been trained to answer some of the questions, but several questions go beyond the scope of your training. Using what you have learned so far in this course, respond to each of the questions.

1. Decide whether your training as a lead sampling technician qualifies you to answer the question and check either "yes" or "no."
2. In the far right column, provide an appropriate response by either answering the question or referring your client to the appropriate source for further information.

Question	I've been trained to provide an answer		If you checked "yes," provide an answer. If you checked "no," provide a source for further information.
	Yes	No	
1. What kind of cleaning will remove the lead-contaminated dust?			
2. Where is the dust coming from?			
3. If lead contaminated dust was found to be below Federal guidance, does that mean that my property is "lead-free?"			
4. The results indicated that lead was undetectable, is my property "lead-free?"			
5. Do I have to have clearance testing done again?			
6. What should I do about the lead-contaminated dust?			
7. Do I have to tell anyone else about the clearance results?			

Blank Report Form

The following is a blank report form that you can use to write your clearance reports. Photocopy it as needed, fill in the appropriate information, and attach appropriate reports and handouts.

1. Fill out the cover page:
   - Name of your firm with contact information and certification number
   - Name and certification number of the Lead Sampling Technician
   - Client and property information
   - Name, address, and certification number of the lab used
   - Summary table with results of the dust sampling. Only copy in the items that did not pass clearance.
2. Attach the following:
   - Dust Sampling Results form (from the lab)
   - Visual Assessment Form (from your visual assessment)
   - Understanding Your Report (included in this blank form)
   - Handouts (also included in this blank form)

Handouts

The handouts included in the blank report form are useful factsheets that can be given to clients to provide additional information about lead-based paint and how to address it. They can be given to clients before the exam and they can also be attached to reports as shown in Appendix C. The handouts include:

- Handout 1: What Are the Sources of Lead in Your Home?
- Handout 2: Cleaning Up
- Handout 3: Safe Repair and Maintenance of Lead-Based Paint
- Handout 4: Ongoing Monitoring and Maintenance
- Handout 5: Frequently Asked Questions

Name, Address and Phone Number of the Clearance Firm:

_____

_____

_____

_____

Firm certification number: _____

CLEARANCE EXAMINATION REPORT

Date of inspection:	
Lead Sampling Technician:	
Certification number:	
Property address:	
Apartment:	
Client name:	
Client address:	
Laboratory:	
Address:	
Telephone number:	
NLLAP number:	

SUMMARY RESULTS

Lead-contaminated dust was found in the following areas:

Location	Surface	μg lead/ft^2

Signature: _____ Date: _____

VISUAL ASSESSMENT

Date of clearance:	
Clearance Technician:	
Client:	
Property address:	

Location	Identify visible areas of dust, paint chips, painted debris, and deteriorated paint. *(Note location: walls, ceiling, floors, doors, windows, trim, cabinets, etc.)*
Entry Area	
Living Room	
Dining Room	
Kitchen	
Common Area	
Bedroom #1	
Bedroom #2	
Bath #1	
Exterior	

Attach Laboratory Results Here.

Understanding Your Report

1. The Summary Results section lists all of the areas that failed the clearance examination. The entire area represented by the sample needs to be re-cleaned and then re-tested to see if the cleaning removed the contaminated dust.

   Written information on proper cleaning, monitoring, addressing sources of lead in the home, and safe repair of paint are included with this report. Further information can be obtained by contacting the National Lead Information Center Clearinghouse at 1-800-424-Lead (1-800-424-5323). You may consider hiring a risk assessor to evaluate lead hazards in your home and prepare a lead hazard control plan. Risk assessors in your area can be located through the Lead Listing at 1-888-Leadlist (1-888-532-3547).

2. The laboratory result forms attached to the report list all of the areas sampled inside and outside the dwelling and the laboratory analysis results for each sample.

3. The results of dust wipe samples are presented in micrograms per square foot ($\mu g/ft^2$); soil samples are presented in micrograms per gram ($\mu g/g$).

4. Areas that failed the clearance examination showed lead levels in dust or soil at or above Federal guidance, HUD standards, or state standards. The guidance and standards that were used for this clearance examination are:

Federal (EPA) Guidance for Lead in Dust

Floors: 100 $\mu g/ft^2$
Interior window sill (stool): 500 $\mu g/ft^2$
Window trough: 800 $\mu g/ft^2$

HUD Standards for Lead in Dust*

Floors: 40 $\mu g/ft^2$
Interior window sill (stool): 250 $\mu g/ft^2$
Window trough: 800 $\mu g/ft^2$

*For dwellings that receive funding from the U.S. Department of Housing and Urban Development (HUD), standards set by HUD may apply.

Handout #1

What Are the Sources of Lead in Your Home?

There are four major sources of lead that can pose a health hazard to people in and around the home. The sources are:

1. **Lead-based paint.** Lead-based paint can be found in housing built before 1978. It can be a hazard, especially if it deteriorates or, if it is disturbed during maintenance or normal wear and tear. If lead-based paint is peeling, chipping, chalking or cracking, it will create lead-contaminated dust that poisons children through normal hand-to-mouth activity. Children may also eat paint chips or chew on painted surfaces that are accessible to them, resulting in poisoning. Even lead-based paint that appears to be in good condition can be a problem if it is on surfaces that get a lot of wear and tear, such as door jambs and window tracks. It is important to remove the causes of deteriorating paint such as water leaks. Repair areas where lead paint is deteriorating by repainting using a good latex paint or lead sealer. (See Handout #3 on safe paint repair).

2. **Lead-contaminated dust.** Lead-contaminated dust is created when lead-based paint is sanded or scraped during maintenance or repair, or just through every day wear and tear. When maintenance or renovation takes place, the dust from these operations settles on surfaces such as floors, countertops, window sills and furniture. If the paint being worked on contains lead, the lead is deposited on surfaces as dust. Window tracks and door jambs can be another source of lead-contaminated dust. If these components rub during normal opening and closing, lead-contaminated dust can be created and deposited on surfaces throughout the home. Lead from work done on house exteriors can be tracked into the home, becoming an additional source of lead dust. After routine home maintenance or remodeling renovation and painting, the home should be thoroughly cleaned to remove any dust that may be left behind because it may contain lead. Lead dust sampling should then be performed to verify that the cleaning was effective.

3. **Lead-contaminated soil.** Soil can become contaminated when exterior lead-based deteriorates and gets into the soil. Homes near certain industries such as smelters or battery manufacturers may have lead into the soil as a result of these operations. Past use of leaded gasoline has also left lead deposits in our nation's soil. Playgrounds and gardens should not be placed in areas where the soil is contaminated with lead. Soil can be tracked into the home so it is important for workers to clean shoes or remove them before entering the home.

4. **Lead-contaminated drinking water.** Drinking water can be contaminated with lead, regardless of the water's source. Many faucets in homes and on store shelves contain leaded components that can leach lead into the water. Leaded solder in household piping and leaded components in well pumps have been in use for many years, and continue to leach lead into the drinking water of thousands of homes even today. Many public water delivery systems still have old lead piping through which the water must pass before it reaches the home. Water with a high pH has a tendency to leach more lead than water with a neutral pH, and warm water leaches more lead than cold. Allow cold water to run before drinking.

The following are sources of information about lead-based paint in your home:

- National Lead Information Center (NLIC) – 1-800-424-LEAD (1-800-424-5323). NLIC is a clearinghouse for information on lead. They provide copies of pamphlets, reports, and other resources.
- Safe Drinking Water Hotline – 1-800-426-4791. This hotline provides information and assistance to the public on safe drinking water.

CLEANING UP

It is very important to use proper cleanup procedures at the end of any remodeling, repainting, or maintenance job. Dust and paint chips left behind at the end of the job may contain lead and may endanger children. Have dust wipe samples collected at the end of the job to be sure that it is safe for children to return.

Cleaning the Work Area

1. **Pick Up Work Area**

- Pick up large chips with damp paper towel.
- Mist then push dust into dust pan.

2. **Pick Up Protective Sheeting**

- Clean off protective sheeting. Fold dirty side inward (dirty side to dirty side). Dispose of protective sheeting at the end of each job. Protective sheeting may be used gain within the same work area if it has not already been folded.

3. **Vacuum**

- HEPA vacuum all horizontal surfaces—slowly.
- Vacuum all ledges, sills, stools, molding tops, dusty surfaces, etc.
- Vacuum floor under work area. Use vacuum corner tools in corners, cracks of trim, and between floor boards.
- Vacuum floor with floor brush and carpet with a carpet tool.
- Important: Vacuum carpet very slowly.

4. **Mist and Scrub**

- Wet rag with detergent then wring out.
- Mist surface or rag as you clean.
- Lead needs scrubbing, not just wiping.

5. **Rinse Rag**

- Squeeze rag into empty side of split bucket. Rinse out rag. Squeeze into empty side. Repeat as needed.
- Change rinse water often. Use paper towels first if surfaces are very dirty. Replace rag when it looks dirty.
- Recommendation: Make a final pass with a HEPA vacuum.

Cleaning Floors

1. **Mist and Scrub**

- At start of cleaning, soak mop in detergent water then mist small area with detergent before mopping.
- Scrub with mop.
- Squeeze mop into empty bucket then rise in rinse water. Rinse often. Squeeze out and rinse again. Mop small areas at a time.

2. **Rinse**

- Repeat above process using clean water rather than detergent. When cleaning up a work site, use a new mop head for rinse stage.
- Recommendation: Make a final pass with a HEPA vacuum.

Handout #3

Safe Repair and Maintenance of Lead-Based Paint

Repairing, removing or maintaining lead-based paint improperly can spread lead-contaminated dust throughout the home. It is very important to use safe work methods when working on surfaces that may contain lead-based paint.

1. **Use the proper equipment**. You will need the proper tools and supplies to do the job correctly. In addition to tools such as scrapers and putty knives, it is important to have: A HEPA vacuum (a vacuum equipped with a very fine filter capable of filtering very small particles of lead); double sided mop bucket and mop; a good household detergent; ample disposable paper towels or rags; plastic sheeting; tack cloth; disposal waste bags; wet sanding blocks; and misting bottle filled with water.

2. **Set up the work area property**. The key is to contain the dust and debris created by the work. Create a barrier between the work area and the rest of the house. Use plastic sheeting over the doorways to seal off the area and protect the rest of the house from exposure. Work over a plastic drop cloth (never use cloth) to catch any debris created as a result of paint removal. Wear disposable shoe covers and remove them before exiting the work area, or step onto a tack cloth to remove paint chips and dust from the soles of shoes. Keep doors and windows closed to prevent dust from blowing and close off vents to central air or heating systems to avoid spreading dust to other parts of the house. Remove all furniture, or cover tightly with plastic sheeting. Do not allow children or pregnant women into the work area.

3. **Safe work practices**. Never remove lead-based paint by dry-sanding, dry scraping or burning. Use power sanders, grinders, planers only with a HEPA exhaust attachment. Using your misting bottle, wet the painted surface before sanding with a wet sanding block, or scraping. Be sure to work over a plastic drop cloth to catch any large particles. Do not eat, smoke or chew gum while working.

4. **Clean as you work**. Be sure to wet clean the areas you are working on as you go along. Though it will be necessary to clean the entire house at the end of the project, it is important to clean as you work in order to keep lead-contaminated dust from spreading. Clean using a good household detergent. Rinse your cleaning utensils in clean water.

5. **Proper disposal**. When the work is done, mist the plastic sheeting with water to keep down the dust. Roll the plastic sheet up, keeping the dirty side in. Pick up any paint chips or other debris that may have fallen elsewhere. Be sure to place all disposable items used in the repair and clean up into plastic waste bags. The bags must be tightly sealed and properly can be disposed of with the household trash*. Once the bags are sealed, do not reopen them.

6. **Have dust sampling done**. You should have dust sampling done after all renovations, painting, maintenance and cleaning activities. The results of this test will tell you if your work practices and final cleaning have been effective at removing lead-contaminated dust. Since lead dust levels in the home may change over time, it is strongly suggested that you perform dust testing periodically to help safeguard your family. If lead-contaminated dust levels begin to rise, re-inspect the home for deteriorating paint, repair where necessary repeating the steps outlined in this fact sheet, and be sure to wet clean thoroughly.

*Check with your State lead program to make sure that there is no regulation prohibiting this in your state.

Handout #4
Ongoing Monitoring and Maintenance

Take the following steps to make sure that paint is not deteriorating in your home and creating lead-contaminated dust and paint chips. This will help prevent children from being lead poisoned.

1. **Regularly Check Repairs for Deterioration, Paint Chips, and Dust**

   Property owners should regularly monitor painted surfaces where maintenance or improvements were performed. Check to see if:

   - New evidence of deterioration or paint failure is present.
   - The cause of the problem was corrected.
   - Lead dust hazards are present. Important: This can only be done by dust wipe sampling.

2. **Maintain Surfaces and Thoroughly Clean**

   Then:

   - Perform repairs, as needed, to maintain surfaces in a smooth and cleanable condition using safe work methods; and
   - Clean the area thoroughly using safe cleaning practices.

3. **Methods of Monitoring**

   Follow the these steps to check your work:

   - **Conduct Visual Check**. Look for deterioration, paint failure, dust and paint chips.
   - **Test for Lead Dust**. Have dust wipe samples taken to check for dust that may be contaminated with lead. A test is needed to determine when dust contains harmful amounts of lead.

4. **When to Monitor?**

   - **Annually**. Perform a visual check of past repairs and improvements involving painted surfaces.
   - **During Unit Turnover or Routine Maintenance**. Perform a visual check of past repairs and improvements involving painted surfaces.
   - **Every Two Years.** Get a dust wipe done at least every two years. This type of test is strongly recommended when a young child or pregnant women lives in the home.

5. **Why Is It Important to Monitor and Maintain Work?**

   Monitoring and maintenance helps:

   - Plan and implement maintenance tasks
   - Protect occupants and neighbors, particularly children, from lead exposure
   - Give owners, contractors, and residents a record of the condition of the unit

Handout #5:
Frequently Asked Questions about Clearance Examinations

Question	Answer
1. If lead-contaminated dust was found to be below Federal standards, does that mean that my property is "lead-free?"	No. Lead-based paint may be present. The lower levels can still be dangerous, and the sources of dust may still be present. Because the clearance tested for levels of lead in dust at the time samples were taken, the levels could change over time.
2. The results indicated that lead was undetectable, is my property "lead-free?"	No, only paint testing can determine for certain whether a property is free of lead-based paint. A clearance test only tests for the presence of lead in dust at the time of testing. Lead in dust could exist later.
3. Where did the dust come from?	Dust can come from many sources including renovation or maintenance work, lack of regular cleaning, deteriorated painted surfaces, or sources from outside the property. The test does not evaluate the quality or effectiveness of renovation or maintenance or the state of existing building conditions. Only a certified/licensed risk assessor is qualified to determine the source of lead dust. If the clearance test occurred right after maintenance or renovation work was done, a thorough re-cleaning and second clearance test may be the most prudent course of action.
4. What kind of cleaning will remove the lead dust?	See the advice on proper cleaning is also provided as Handout #2.
5. Who is responsible for removing the dust?	The property owner is ultimately responsible. If the owner has an agreement with a contractor who just performed work, the contractor may have to perform another cleaning and have the clearance test conducted again.
6. The clearance report shows lead in dust above the Federal standards. What should I do?	The answer to this question depends on whether clearance was performed for HUD-related work or not. For non-HUD projects: There are no regulatory requirements to respond to lead-contaminated dust. However, a proper re-cleaning is recommended to remove the lead-contaminated dust and make the home safe for occupancy. A second clearance test after re-cleaning is recommended. A property owner must disclose to future occupants or potential homebuyers the results of the clearance testing. If a second clearance test shows levels below the standards, this result should also be disclosed to show that you have dealt with the lead hazard. For HUD-related clearance. Proper re-cleaning followed by another clearance examination is required. The unit must be re-cleaned and clearance performed until the clearance shows no lead dust above the HUD standards. If the clearance examination identifies lead-contaminated dust, owners of rental properties must inform the occupants of the results of the clearance examinations even if the lead dust was successfully removed. It is important that occupants be aware that there has been lead-contaminated dust in the property because it could occur again in the future.
7. What should I do to monitor the lead-based paint hazards?	If paint is disturbed in the future, follow lead-safe work practices and conduct clearance again. If a child under six or a pregnant woman moves into the unit, consider having dust wipe samples collected and tested for lead-contaminated dust. If you want to know more about lead hazards or lead-based paint in the unit, consider hiring a certified risk assessor or lead paint inspector.
8. Should I keep the report? For how long?	The report should be kept as a reference in case issues arise later. For example, you may need it to comply with Federal disclosure requirements if you rent or sell your home. For work on HUD projects, the report documents whether a unit meets HUD requirements for clearance after rehabilitation or maintenance. In any case, it is most prudent to plan to keep the report indefinitely.

BEST COPY AVAILABLE

Appendix C
Model Report

Model Clearance Examination Report

This is a model clearance examination report for clearance done after renovation on a privately owned rented single-family home. The renovation was paid for by the property owner.

Renovation work was performed on the upstairs bedrooms and kitchen area. It included work on the windows. Because workers may have contaminated the upstairs hallway as they passed through the hallway on their way to and from the work areas, the clearance examination also included the hallway.

Note that this report includes:

- A cover page with summary
- Copies of all test results
- Handouts - fact sheets with useful additional information

Home Environmental Inspection Services, Inc.
345 Hammond Road
East Chicago, IN 12345
123-123-1235
345-789-5678 (fax)

Firm certification number: IN 78787

CLEARANCE EXAMINATION REPORT

Date of inspection:	8/5/99
Lead Sampling Technician:	Joe Smith
Certification number:	IN 77777
Property address:	78 East Main St., Apt. A Hammond, IN 89898
Apartment:	A
Client name:	Sally Jones
Client address:	80 East Main St. Hammond, IN 89898
Laboratory:	Analysis Services, Inc.
Address:	990 45th St., Suite 500 Gary, IN 44444
Telephone number:	222-222-2222
NLLAP number:	IN 999999

Summary Results

Dust above Federal standards was found in the following areas:

Location	Surface	μg lead/ft^2
Small bedroom	Side facing window-- sill	600
Small bedroom	Floor	200
Kitchen	Window above sink-- sill	525
Second floor hallway	Floor	150

Signature: *Joe Smith*
Date: *8/12/99*

VISUAL ASSESSMENT FORM

Date of clearance:	8/5/99
Clearance Technician:	Joe Smith
Client:	Sally Jones
Property address:	78 East Main St., Apt. A Hammond, IN 89898

Location	Identify visible areas of dust, paint chips, painted debris, and deteriorated paint. *(Note location: walls, ceiling, floors, doors, windows, trim, cabinets, etc.)*
Entry Area	
Living Room	
Dining Room	
Kitchen	Window above sink; deteriorated paint on window sash; Client said deteriorated paint was tested and is not lead-based paint
Common Area	
Bedroom #1 Small bedroom (Street Side)	East window: deteriorated paint on lower sash; Client said deteriorated paint was tested and is not lead-based paint
Bedroom #2 Small bedroom (Back of the house)	Ok
Bath #1	
Exterior	

DUST SAMPLING RESULTS FORM

Date of clearance:	8/5/99
Lead Sampling Technician:	Joe Smith
Client:	Sally Jones
Property address:	78 East Main St., Apt. A Hammond, IN 89898

Sample #	Location	Surface	Dimensions of sample area	µg Lead/ft^2	Above/ Below Standard
1-2	Upstairs small bedroom	Front facing window- window sill	4" x 18"	17	Below
1-3	Upstairs small bedroom	Floor under window	12" x 12"	200	Above
1-4	Upstairs small bedroom	Side facing window- window sill	4" x 18"	600	Above
2-1	Second floor hallway	Floor	12" x 12"	150	Above
3-1	Staircase	Floor	12" x 12"	25	Below
4-1	Kitchen	Floor under window	12" x 12"	12	Below
4-2	Kitchen	Window above sink- window sill	4" x 18"	525	Above
5-1	First floor	Floor	12" x 12"	30	Below

Understanding Your Report

1. The Summary Results section lists all of the areas that failed the clearance examination. The entire area represented by the sample needs to be re-cleaned and then re-tested to see if the cleaning removed the contaminated dust.

   Written information on proper cleaning, monitoring, addressing sources of lead in the home, and safe repair of paint are included with this report. Further information can be obtained by contacting the National Lead Information Center Clearinghouse at 1-800-424-Lead (1-800-424-5323). You may consider hiring a risk assessor to evaluate lead hazards in your home and prepare a lead hazard control plan. Risk assessors in your area can be located through the Lead Listing at 1-888-Leadlist (1-888-532-3547).

2. The laboratory result forms attached to the report list all of the areas sampled inside and outside the dwelling and the laboratory analysis results for each sample.

3. The results of dust wipe samples are presented in micrograms per square foot ($\mu g/ft^2$); soil samples are presented in micrograms per gram ($\mu g/g$).

4. Areas that failed the clearance examination showed lead levels in dust or soil at or above Federal guidance, HUD standards, or state standards. The guidance and standards that were used for this clearance examination are:

Federal (EPA) Guidance for Lead in Dust

Floors: 100 $\mu g/ft^2$
Interior window sill (stool): 500 $\mu g/ft^2$
Window trough: 800 $\mu g/ft^2$

HUD Standards for Lead in Dust*

Floors: 40 $\mu g/ft^2$
Interior window sill (stool): 250 $\mu g/ft^2$
Window trough: 800 $\mu g/ft^2$

*For dwellings that receive funding from the U.S. Department of Housing and Urban Development (HUD), standards set by HUD may apply.

Handout #1
What Are the Sources of Lead in Your Home?

There are four major sources of lead that can pose a health hazard to people in and around the home. The sources are:

1. **Lead-based paint.** Lead-based paint can be found in housing built before 1978. It can be a hazard, especially if it deteriorates or, if it is disturbed during maintenance or normal wear and tear. If lead-based paint is peeling, chipping, chalking or cracking, it will create lead-contaminated dust that poisons children through normal hand-to-mouth activity. Children may also eat paint chips or chew on painted surfaces that are accessible to them, resulting in poisoning. Even lead-based paint that appears to be in good condition can be a problem if it is on surfaces that get a lot of wear and tear, such as door jambs and window tracks. It is important to remove the causes of deteriorating paint such as water leaks. Repair areas where lead paint is deteriorating by repainting using a good latex paint or lead sealer. (See Handout #3 on safe paint repair).

2. **Lead-contaminated dust.** Lead-contaminated dust is created when lead-based paint is sanded or scraped during maintenance or repair, or just through every day wear and tear. When maintenance or renovation takes place, the dust from these operations settles on surfaces such as floors, countertops, window sills and furniture. If the paint being worked on contains lead, the lead is deposited on surfaces as dust. Window tracks and door jambs can be another source of lead-contaminated dust. If these components rub during normal opening and closing, lead-contaminated dust can be created and deposited on surfaces throughout the home. Lead from work done on house exteriors can be tracked into the home, becoming an additional source of lead dust. After routine home maintenance or remodeling renovation and painting, the home should be thoroughly cleaned to remove any dust that may be left behind because it may contain lead. Lead dust sampling should then be performed to verify that the cleaning was effective.

3. **Lead-contaminated soil.** Soil can become contaminated when exterior lead-based deteriorates and gets into the soil. Homes near certain industries such as smelters or battery manufacturers may have lead into the soil as a result of these operations. Past use of leaded gasoline has also left lead deposits in our nation's soil. Playgrounds and gardens should not be placed in areas where the soil is contaminated with lead. Soil can be tracked into the home so it is important for workers to clean shoes or remove them before entering the home.

4. **Lead-contaminated drinking water.** Drinking water can be contaminated with lead, regardless of the water's source. Many faucets in homes and on store shelves contain leaded components that can leach lead into the water. Leaded solder in household piping and leaded components in well pumps have been in use for many years, and continue to leach lead into the drinking water of thousands of homes even today. Many public water delivery systems still have old lead piping through which the water must pass before it reaches the home. Water with a high pH has a tendency to leach more lead than water with a neutral pH, and warm water leaches more lead than cold. Allow cold water to run before drinking.

The following are sources of information about lead-based paint in your home:

- National Lead Information Center (NLIC) – 1-800-424-LEAD (1-800-424-5323). NLIC is a clearinghouse for information on lead. They provide copies of pamphlets, reports, and other resources.
- Safe Drinking Water Hotline – 1-800-426-4791. This hotline provides information and assistance to the public on safe drinking water.

Handout #2
CLEANING UP

It is very important to use proper cleanup procedures at the end of any remodeling, repainting, or maintenance job. Dust and paint chips left behind at the end of the job may contain lead and may endanger children. Have dust wipe samples collected at the end of the job to be sure that it is safe for children to return.

Cleaning the Work Area

1. **Pick Up Work Area**

- Pick up large chips with damp paper towel.
- Mist then push dust into dust pan

2. **Pick Up Protective Sheeting**

- Clean off protective sheeting. Fold dirty side inward (dirty side to dirty side). Dispose of protective sheeting at the end of each job. Protective sheeting may be used gain within the same work area if it has not already been folded.

3. **Vacuum**

- HEPA vacuum all horizontal surfaces—slowly.
- Vacuum all ledges, sills, stools, molding tops, dusty surfaces, etc.
- Vacuum floor under work area. Use vacuum corner tools in corners, cracks of trim, and between floor boards.
- Vacuum floor with floor brush and carpet with a carpet tool.
- Important: Vacuum carpet very slowly.

4. **Mist and Scrub**

- Wet rag with detergent then wring out.
- Mist surface or rag as you clean.
- Lead needs scrubbing, not just wiping.

5. **Rinse Rag**

- Squeeze rag into empty side of split bucket. Rinse out rag. Squeeze into empty side. Repeat as needed.
- Change rinse water often. Use paper towels first if surfaces are very dirty. Replace rag when it looks dirty.
- Recommendation: Make a final pass with a HEPA vacuum.

Cleaning Floors

1. **Mist and Scrub**

- At start of cleaning, soak mop in detergent water then mist small area with detergent before mopping.
- Scrub with mop.
- Squeeze mop into empty bucket then rise in rinse water. Rinse often. Squeeze out and rinse again. Mop small areas at a time.

2. **Rinse**

- Repeat above process using clean water rather than detergent. When cleaning up a work site, use a new mop head for rinse stage.
- Recommendation: Make a final pass with a HEPA vacuum.

Handout #3
Safe Repair and Maintenance of Lead-Based Paint

Repairing, removing or maintaining lead-based paint improperly can spread lead-contaminated dust throughout the home. It is very important to use safe work methods when working on surfaces that may contain lead-based paint.

1. **Use the proper equipment**. You will need the proper tools and supplies to do the job correctly. In addition to tools such as scrapers and putty knives, it is important to have: A HEPA vacuum (a vacuum equipped with a very fine filter capable of filtering very small particles of lead); double sided mop bucket and mop; a good household detergent; ample disposable paper towels or rags; plastic sheeting; tack cloth; disposal waste bags; wet sanding blocks; and misting bottle filled with water.

2. **Set up the work area property**. The key is to contain the dust and debris created by the work. Create a barrier between the work area and the rest of the house. Use plastic sheeting over the doorways to seal off the area and protect the rest of the house from exposure. Work over a plastic drop cloth (never use cloth) to catch any debris created as a result of paint removal. Wear disposable shoe covers and remove them before exiting the work area, or step onto a tack cloth to remove paint chips and dust from the soles of shoes. Keep doors and windows closed to prevent dust from blowing and close off vents to central air or heating systems to avoid spreading dust to other parts of the house. Remove all furniture, or cover tightly with plastic sheeting. Do not allow children or pregnant women into the work area.

3. **Safe work practices**. Never remove lead-based paint by dry-sanding, dry scraping or burning. Use power sanders, grinders, planers only with a HEPA exhaust attachment. Using your misting bottle, wet the painted surface before sanding with a wet sanding block, or scraping. Be sure to work over a plastic drop cloth to catch any large particles. Do not eat, smoke or chew gum while working.

4. **Clean as you work**. Be sure to wet clean the areas you are working on as you go along. Though it will be necessary to clean the entire house at the end of the project, it is important to clean as you work in order to keep lead-contaminated dust from spreading. Clean using a good household detergent. Rinse your cleaning utensils in clean water.

5. **Proper disposal**. When the work is done, mist the plastic sheeting with water to keep down the dust. Roll the plastic sheet up, keeping the dirty side in. Pick up any paint chips or other debris that may have fallen elsewhere. Be sure to place all disposable items used in the repair and clean up into plastic waste bags. The bags must be tightly sealed and properly can be disposed of with the household trash. Once the bags are sealed, do not reopen them.

6. **Have dust sampling done**. You should have dust sampling done after all renovations, painting, maintenance and cleaning activities. The results of this test will tell you if your work practices and final cleaning have been effective at removing lead-contaminated dust. Since lead dust levels in the home may change over time, it is strongly suggested that you perform dust testing periodically to help safeguard your family. If lead-contaminated dust levels begin to rise, re-inspect the home for deteriorating paint, repair where necessary repeating the steps outlined in this fact sheet, and be sure to wet clean thoroughly.

*Check with your State lead program to make sure that there is no regulation prohibiting this in your state.

Handout #4
Ongoing Monitoring and Maintenance

Take the following steps to make sure that paint is not deteriorating in your home and creating lead-contaminated dust and paint chips. This will help prevent children from being lead poisoned.

1. **Regularly Check Repairs for Deterioration, Paint Chips, and Dust**

   Property owners should regularly monitor painted surfaces where maintenance or improvements were performed. Check to see if:

   - New evidence of deterioration or paint failure is present.
   - The cause of the problem was corrected.
   - Lead dust hazards are present. Important: This can only be done by dust wipe sampling.

2. **Maintain Surfaces and Thoroughly Clean**

   Then:

   - Perform repairs, as needed, to maintain surfaces in a smooth and cleanable condition using safe work methods; and
   - Clean the area thoroughly using safe cleaning practices.

3. **Methods of Monitoring**

   Follow the these steps to check your work:

   - **Conduct Visual Check**. Look for deterioration, paint failure, dust and paint chips.
   - **Test for Lead Dust**. Have dust wipe samples taken to check for dust that may be contaminated with lead. A test is needed to determine when dust contains harmful amounts of lead.

4. **When to Monitor?**

   - **Annually**. Perform a visual check of past repairs and improvements involving painted surfaces.
   - **During Unit Turnover or Routine Maintenance**. Perform a visual check of past repairs and improvements involving painted surfaces.
   - **Every Two Years.** Get a dust wipe done at least every two years. This type of test is strongly recommended when a young child or pregnant women lives in the home.

5. **Why Is It Important to Monitor and Maintain Work?**

   Monitoring and maintenance helps:

   - Plan and implement maintenance tasks
   - Protect occupants and neighbors, particularly children, from lead exposure
   - Give owners, contractors, and residents a record of the condition of the unit

Appendix D: Glossary

Abatement – Measures to permanently (at least 20 years) control lead-based paint or lead-based paint hazards.

Blank sample – A blank sample is a new, unused dust wipe that is sent to the laboratory to determine if the wipes are contaminated.

Chain-of-custody – The chain-of-custody includes all the people who handle a sample. To establish a "chain-of-custody," every person who handles the sample must sign and date a form.

Clearance examination – Clearance involves a visual assessment and dust sampling. It is performed following renovation and remodeling or hazard reduction activities to determine if a work site has been cleaned properly. HUD requires it after HUD-funded rehabilitation, lead hazard reduction, or other activities that involve the disturbance of painted surfaces.

Composite dust wipe samples – A composite dust wipe sample is a sample that holds up to four dust wipes in one container. Each wipe is called a sub-sample. A composite tells you the average of level of lead-contaminated dust across all the areas you sampled.

Detection limit – The detection limit is defined as the level below which the laboratory cannot report an accurate level of lead.

Deteriorated paint – Deteriorated paint is any paint that is not intact. Examples include chipped, peeling, flaking, chalking, or cracking paint.

Dust wipe sampling – Dust wipe sampling determines the levels of lead in dust in order to compare the levels to the Federal and/or State guidance. It involves wiping a surface with a moistened wipe following a specific protocol and sending the sample to a laboratory for analysis.

HUD-required clearance – HUD requires clearance in pre-1978 residential dwellings that receive Federal financial assistance or are sold by the Federal government after lead hazard reduction activities are performed in accordance with the regulation. (These lead hazard reduction activities may be performed in conjunction with initial or periodic unit inspections, rehabilitation, or maintenance.)

Interim controls – Set of measures to temporarily control lead-based paint hazards. Interim control methods must be completed by qualified workers using safe work practices. Follow-up monitoring is needed.

Lead abatement – A procedure to address lead-based paint permanently (for at least 20 years) by making the lead-based paint inaccessible or by removing it. Examples include component removal, paint removal, enclosure, and encapsulation.

Lead paint inspector – Lead paint inspectors evaluate the painted surfaces in a unit to determine which surfaces contain lead-based paint. They measure the concentration of lead in paint on a surface-by-surface basis and present a report that identifies the location and concentration of lead for each component tested.

Appendix D: Glossary

Lead sampling technician – A lead sampling technician has successfully completed training to perform lead sampling, including performing a visual assessment and collecting dust wipe samples.

Lead-based paint – Lead-based paint is paint that contains lead above a certain amount. The federal guidelines for lead-based paint are: (1) greater than or equal to 1 mg/cm^2 of lead; and (2) greater than or equal to 0.5% [5,000 parts per million (ppm)] lead by dry weight.

Lead-contaminated dust – Lead-contaminated dust is dust that contains lead above a specific threshold. HUD and EPA have different thresholds. The HUD Standards are 40 $\mu g/ft^2$ (for floors), 250 $\mu g/ft^2$ (for interior window sills), and 800 $\mu g/ft^2$ (for window troughs). The EPA guidance is 100 $\mu g/ft^2$ (for floors), 500 $\mu g/ft^2$ (for interior window sills), and 800 $\mu g/ft^2$ (for window troughs).

Lead-contaminated soil – Lead-contaminated soil is soil that contains lead above a specific threshold. The thresholds are 400 ppm (if soil is in a play area used by children) and 2000 ppm (for other bare soil).

National Lead Laboratory Accreditation Program (NLLAP) – The NLLAP accredits laboratories to perform lead related analyses and provides the public with a list of its accredited laboratories for analyzing lead in dust samples.

Paint chip sampling – Paint chip sampling involves taking a sample of paint to determine whether areas of paint contain lead-based paint.

Paint testing – Paint testing involves evaluating the painted surfaces in a unit to show how much lead is in the paint. It measures the concentration of lead in paint on a surface-by-surface basis. It can be done in a laboratory or by using an XRF analyzer.

Post-renovation clearance – After renovation, remodeling, or repainting, it is appropriate to perform clearance in the work site to confirm that the dwelling unit was adequately cleaned and that the renovation work has not created any lead hazards.

Risk assessor – A risk assessor evaluates dwelling units to identify all lead hazards. The evaluation involves a visual examination as well as dust, soil, and paint chip sampling. The risk assessor then writes a report that describes the nature, severity, and location of all identified lead-based paint hazards. A risk assessor also provides options for remediation of each identified lead hazard.

Single-surface sampling – Single-surface dust wipe samples contain one wipe. It measures the lead dust level from a specific surface such as a floor or an interior window sill.

Soil sampling – Soil sampling involves testing soil samples for lead to determine if the lead levels exceed Federal and/or State guidance for hazardous levels of lead in soil.

Spiked sample – A spiked sample is a dust wipe sample that contains a known weight of lead-based paint dust. Spiked samples are used to ensure adequate quality control of the digestion process at the laboratory. The spiked samples are sent to the laboratory to see if it reports back accurate results.

Appendix D: Glossary

Templates – Templates are used to outline the measured area that is to be wiped for a dust sample. Templates are usually made of wood, plastic, or metal.

Visual assessment – A visual assessment determines if a dwelling unit is clear of certain conditions that can cause exposure to lead, such as obvious dust, paint chips, painted debris, and deteriorated paint.

Window sill – A trim piece that extends from the bottom of the window frame and acts as a narrow shelf.

Window trough – A window trough is the area between the interior window sill and the frame of the storm window where the bottom sash rests when closed (also called a window well).

XRF – An electronic instrument often used by lead paint inspectors to test for lead in paint.

Appendix E
Answers to Exercises

Appendix E

Answers to Attachment 4-C: Interpreting Laboratory Results

- **Instructions:** The purpose of this activity is to test your ability to verify the results received from the laboratory, compare these results to the clearance guidance levels, and interpret the results. Using the following excerpt from a Dust Sampling Results Form, check the laboratory's calculation of the weighted lead-dust sample. (Note: the numbers used in this exercise have been simplified to facilitate calculations).

Sample #	Location	Surface	Dimensions of Sample Area (ft^2)	Total Lead (µg)	µg/ft^2
92-1	Upstairs bedroom	Floor	1.00	23	23
92-2	Upstairs bedroom	Interior window sill	0.50	150	300
92-3	Kitchen – front window	Interior window sill	0.50	260	130

1. Check the results (µg Lead/g) for each sample. If the results are incorrect, provide the correct results in µg Lead/ft^2.

   92-1: 23/1 = 23 - correct
   92-2: 150/0.50 = 300 - correct
   92-3: 260/0.50 = 520 - incorrect

2. After verifying the laboratory's results, compare these results to the appropriate clearance guidance. Did the individual samples pass or fail the clearance test?

Guidance for Lead-Contaminated Dust
♦ Floors: 100 µg/ft^2
♦ Interior window sills: 500 µg/ft^2
♦ Window trough: 800 µg/ft2

92-1: Result: **23** Clearance Guidance: **100** Pass or Fail? **Pass**

92-2: Result: **300** Clearance Guidance: **500** Pass or Fail? **Pass**

92-3: Result: **520** Clearance Guidance: **500** Pass or Fail? **Fail**

Appendix E

Answers to Attachment 5-B: Scenarios

Scenario #1: You just received a call from Mrs. Green to perform an examination of her home. Mrs. Green tells you that her home was built in 1952. She has just had her kitchen and two bathrooms remodeled and she is concerned about that her home was properly cleaned after the remodeling was done.	
a. Are there any additional questions that you want to ask the owner?	*What kinds of work were done in the kitchen and bathrooms?*
b. What protocol will you follow (post-renovation clearance, HUD-required, or other sampling)?	*Post-renovation clearance.*
c. Where will you conduct the visual assessment? What will you look for?	*In the work area (the kitchen and the bathroom) and the hallways leading to those areas. Look for dust, debris, and paint chips. If you see deteriorated paint, tell Mrs. Green that this is a potential hazard and give her a handout on how to fix it safely.*
d. Will you take dust wipe samples? In what rooms? On what surfaces?	*Yes. In the kitchen, two bathrooms. If the hall had dust and debris tracked in, test there too. On floors. On windows only if work was done on windows.*
Scenario #2: The owner of Parkview apartments asks you to do a clearance examination of a unit in his building. He tells you that the unit receives HUD Section 8 assistance and he just did some paint stabilization in the unit to meet HUD Housing Quality Standards. He says he needs to pass clearance before his tenant moves in.	
a. Are there any additional questions that you want to ask the owner?	*Do we need to perform clearance on the unit or just a portion of the unit? (Note: Because this is Section 8 assistance, we are not talking about rehabilitation under $5000 or maintenance activities, therefore the answer should be unit-wide clearance.)*
b. What protocol will you follow?	*HUD-required Clearance*
c. Where will you conduct the visual assessment? What will you look for?	*Throughout the entire unit. Dust, debris, paint chips, and deteriorated paint.*
d. Will you take dust wipe samples? In what rooms? On what surfaces?	*If the unit passes the visual assessment, then take dust samples. Take it in up to four rooms in the unit. Take it on floors and windows. If paint stabilization included the windows, alternate samples on sills and troughs.*
Scenario #3: Mr. and Mrs. Johnson are moving into a new home. They have a two year old son and Mrs. Johnson is expecting a second child in three months. Before they move in, they wan to make sure their home is safe for their children. They ask you to perform an examination of their home.	
a. Are there any additional questions that you want to ask the owners?	*Do they want to hire a risk assessor? Do they want to clean the unit before the exam?*
b. What protocol will you follow?	*Other lead sampling examination*
c. Where will you conduct the visual assessment? What will you look for?	*Throughout the dwelling. Look for dust, debris, paint chips, and deteriorated paint.*
d. Will you take dust wipe samples? In what rooms? On what surfaces?	*Yes. In four rooms most likely to have children in them. Floor and windows. Alternate sills and troughs.*

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Appendix E

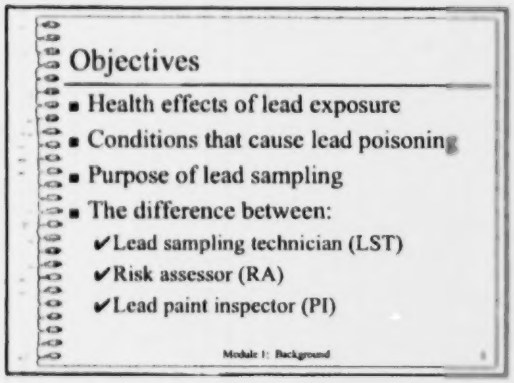
Answers to Attachment 6-A: Answering Client Questions

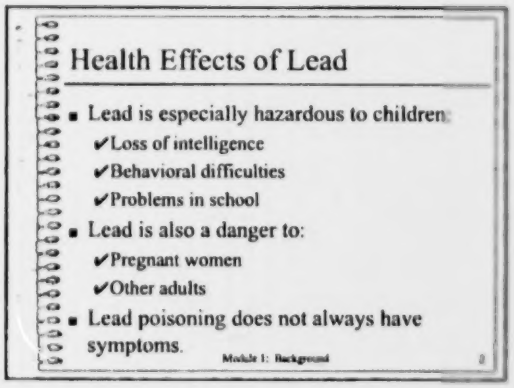
You have just given your client the clearance examination report and she has a lot of questions for you. You have been trained to answer some of the questions, but several questions go beyond the scope of your training. Using what you have learned so far in this course, respond to each of the questions in the left-hand column.

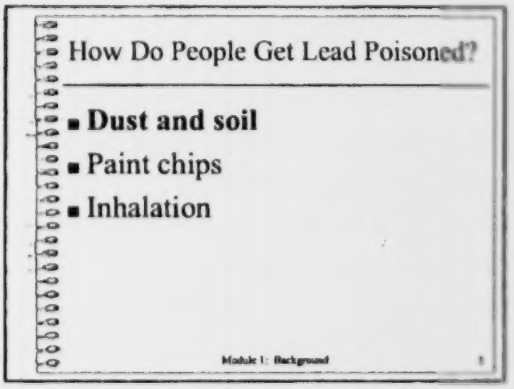
1. Decide whether your training as a clearance technician qualifies you to answer the question and check either "yes" or "no."
2. In the far right column, provide an appropriate response by either answering the question or referring your client to the appropriate source for further information.

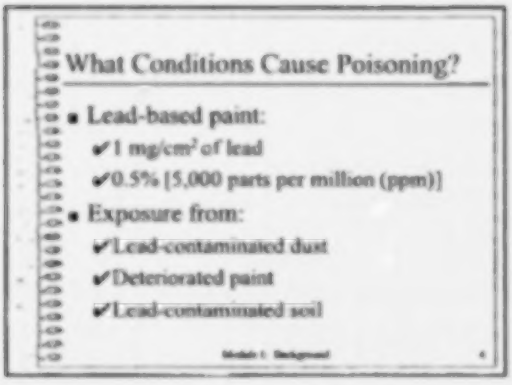
Question	Have I been trained to provide an answer?		If you checked "yes," provide an answer. If you checked "no," provide a source for further information.
	Yes	No	
1. What kind of cleaning will remove the lead-contaminated dust?		✓	Refer client to the factsheet that describes proper cleaning procedures. (See Handout #2 in Appendix B.)
2. Where is the dust coming from?		✓	The dust may be left over from a poor cleanup job but it may come from other sources. Other sources of dust can be located by a risk assessor, who is specifically trained to identify sources of lead dust.
3. If lead contaminated dust was found to be below Federal guidance, does that mean that my property is "lead-free?"	✓		No, lead-based paint may still be present. Passing the clearance examination only shows that no lead-contaminated dust (and soil, if tested) was found at the time clearance was conducted. Further, lead dust may become a hazard in the future.
4. The results indicated that lead was undetectable, is my property "lead-free?"	✓		No, lead-based paint may still be present. If lead in samples was found to be "undetectable," then either no lead exists or there is so little in the sample as to be undetectable. Further, if lead-based paint exists in the dwelling, lead dust may become a hazard in the future.
5. Do I have to have clearance testing done again?	✓		The client does not have to have it re-tested but it is recommended. Ideally, the client should have the areas that failed the clearance examination re-cleaned and re-tested to make sure the area is safe for occupants to return. If the clearance follows HUD-funded work, additional cleaning and clearance are required.
6. What should I do about the lead-contaminated dust?	✓		The unit should be re-cleaned to remove the dust and then re-tested. (See Handout #4 in Appendix B for guidance on cleaning procedures.) If the dust is from an unknown source, consider having a risk assessment done.

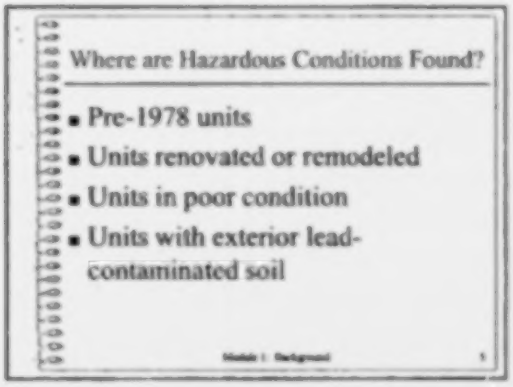
Sample
Student Manual

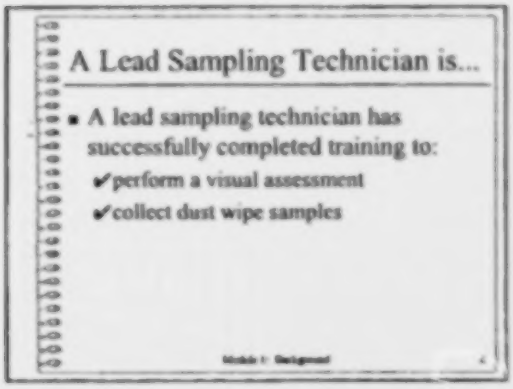

Objectives
Health effects of lead exposure
Conditions that cause lead poisoning
Purpose of lead sampling
The difference between:
✔Lead sampling technician (LST)
✔Risk assessor (RA)
✔Lead paint inspector (PI)
Module 1: Background

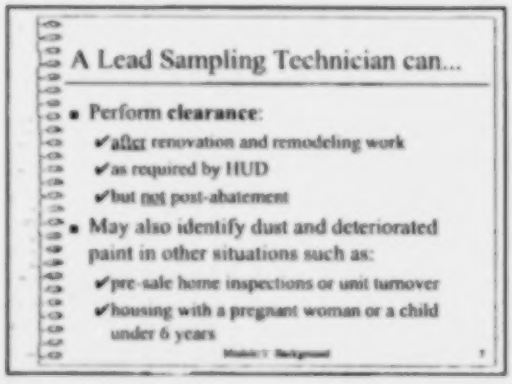

Health Effects of Lead
Lead is especially hazardous to children:
✔Loss of intelligence
✔Behavioral difficulties
✔Problems in school
Lead is also a danger to:
✔Pregnant women
✔Other adults
Lead poisoning does not always have symptoms.
Module 1: Background

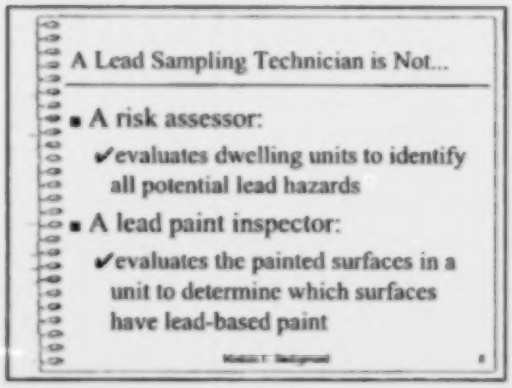

How Do People Get Lead Poisoned?
Dust and soil
Paint chips
Inhalation
Module 1: Background

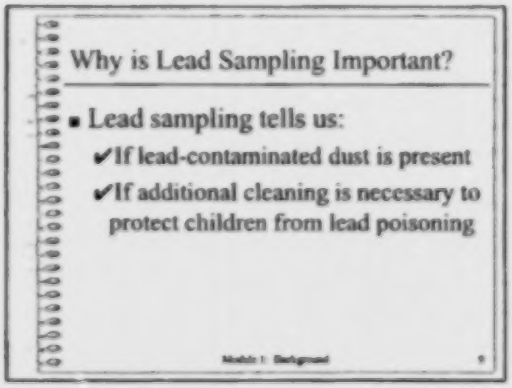

What Conditions Cause Poisoning?
• Lead-based paint:
✔1 mg/cm² of lead
✔0.5% [5,000 parts per million (ppm)]
• Exposure from:
✔Lead-contaminated dust
✔Deteriorated paint
✔Lead-contaminated soil

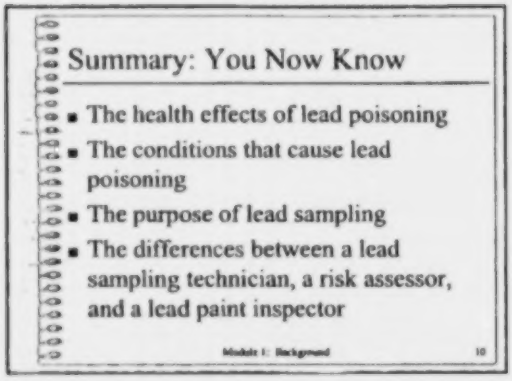

Where are Hazardous Conditions Found?
• Pre-1978 units
• Units renovated or remodeled
• Units in poor condition
• Units with exterior lead-contaminated soil


A Lead Sampling Technician is...
• A lead sampling technician has successfully completed training to:
✔perform a visual assessment
✔collect dust wipe samples


A Lead Sampling Technician can...
• Perform **clearance**:
✔after renovation and remodeling work
✔as required by HUD
✔but not post-abatement
• May also identify dust and deteriorated paint in other situations such as:
✔pre-sale home inspections or unit turnover
✔housing with a pregnant woman or a child under 6 years


A Lead Sampling Technician is Not...
• A risk assessor:
✔evaluates dwelling units to identify all potential lead hazards
• A lead paint inspector:
✔evaluates the painted surfaces in a unit to determine which surfaces have lead-based paint


Why is Lead Sampling Important?
• Lead sampling tells us:
✔If lead-contaminated dust is present
✔If additional cleaning is necessary to protect children from lead poisoning


Summary: You Now Know
The health effects of lead poisoning
The conditions that cause lead poisoning
The purpose of lead sampling
The differences between a lead sampling technician, a risk assessor, and a lead paint inspector
Module 1: Background
10

Attachment 1-A

COMPARING LEAD EVALUATION PROFESSIONALS			
	LEAD SAMPLING TECHNICIAN (LST)	**RISK ASSESSOR (RA)**	**LEAD PAINT INSPECTOR (PI)**
Qualified to perform the following types of evaluations	▪ Clearance ▪ Other dust wipe sampling	▪ Risk assessments ▪ Paint inspections ▪ Clearance ▪ Other lead sampling	▪ Paint inspections ▪ Clearance ▪ Other lead sampling
Is <u>not</u> qualified to perform	▪ Post-abatement clearance ▪ Certain situations as defined in the HUD regulations (*See Module 5*)		▪ Risk assessments
Training/ Certification required to perform evaluations	▪ 5 hour training	▪ Certification ▪ 5 days of training	▪ Certification ▪ 3 days of training
Skills	Perform: ▪ Visual assessment ▪ Dust wipe sampling To give a "pass/fail" result.	Perform: ▪ Interview of residents ▪ Visual evaluation ▪ Dust wipe sampling ▪ Soil sampling ▪ Paint chip sampling ▪ XRF testing To assess a unit, identify lead hazards, and recommend methods for lead hazard reduction.	Perform: ▪ Visual evaluation ▪ Paint chip sampling ▪ Paint testing by XRF Can also perform: ▪ Lead sampling (dust wipe, soil) To identify the existence and location of lead-based paint.

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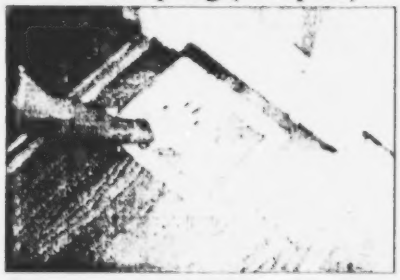
Technician Receiving Call

Gathering Materials

Visual Assessment

Dust sampling (first pass)



Dust sampling (second pass)

Delivering the Report to Client

Pamphlet:
Protect Your Family From Lead in Your Home

Protect Your Family From Lead In Your Home

United States
Environmental
Protection Agency

United States
Consumer Product
Safety Commission

United States
Department of Housing
and Urban Development

U.S. EPA Washington DC 20460
U.S. CPSC Washington DC 20207
U.S. HUD Washington DC 20410

EPA747-K-99-001
April 1999

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Are You Planning To Buy, Rent, or Renovate a Home Built Before 1978?

Many houses and apartments built before 1978 have paint that contains lead (called lead-based paint). Lead from paint, chips, and dust can pose serious health hazards if not taken care of properly.

Federal law requires that individuals receive certain information before renting, buying, or renovating pre-1978 housing:

LANDLORDS have to disclose known information on lead-based paint and lead-based paint hazards before leases take effect. Leases must include a disclosure form about lead-based paint.

SELLERS have to disclose known information on lead-based paint and lead-based paint hazards before selling a house. Sales contracts must include a disclosure form about lead-based paint. Buyers have up to 10 days to check for lead hazards.

RENOVATORS have to give you this pamphlet before starting work. (After June 1, 1999.)

IF YOU WANT MORE INFORMATION on these requirements, call the National Lead Information Clearinghouse at **1-800-424-LEAD**.

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IMPORTANT!

Lead From Paint, Dust, and Soil Can Be Dangerous If Not Managed Properly

FACT: Lead exposure can harm young children and babies even before they are born.

FACT: Even children who seem healthy can have high levels of lead in their bodies.

FACT: People can get lead in their bodies by breathing or swallowing lead dust, or by eating soil or paint chips containing lead.

FACT: People have many options for reducing lead hazards. In most cases, lead-based paint that is in good condition is not a hazard.

FACT: Removing lead-based paint improperly can increase the danger to your family.

If you think your home might have lead hazards, read this pamphlet to learn some simple steps to protect your family.

Lead Gets in the Body in Many Ways

In the United States, about 900,000 children ages 1 to 5 have a blood-lead level above the level of concern.

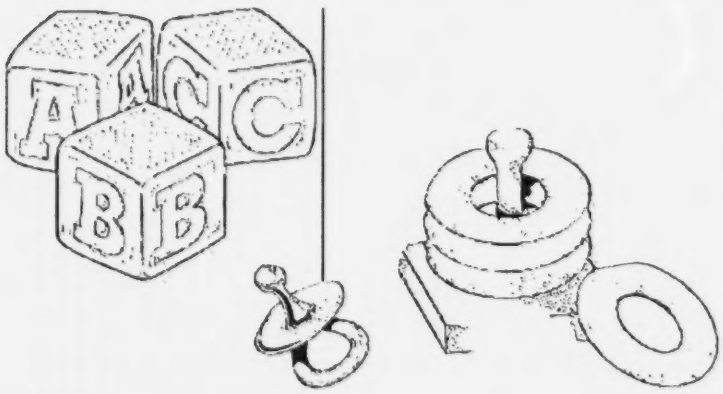
Even children who appear healthy can have dangerous levels of lead in their bodies.

People can get lead in their body if they:

- ◇ Put their hands or other objects covered with lead dust in their mouths.
- ◇ Eat paint chips or soil that contains lead.
- ◇ Breathe in lead dust (especially during renovations that disturb painted surfaces).

Lead is even more dangerous to children than adults because:

- ◇ Babies and young children often put their hands and other objects in their mouths. These objects can have lead dust on them.
- ◇ Children's growing bodies absorb more lead.
- ◇ Children's brains and nervous systems are more sensitive to the damaging effects of lead.



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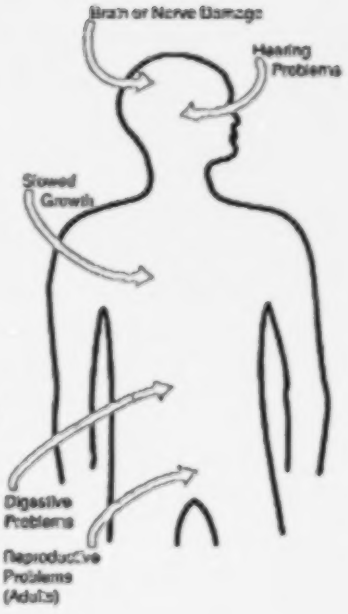
Lead's Effects

If not detected early, children with high levels of lead in their bodies can suffer from:

- ◇ Damage to the brain and nervous system
- ◇ Behavior and learning problems (such as hyperactivity)
- ◇ Slowed growth
- ◇ Hearing problems
- ◇ Headaches

Lead is also harmful to adults. Adults can suffer from:

- ◇ Difficulties during pregnancy
- ◇ Other reproductive problems (in both men and women)
- ◇ High blood pressure
- ◇ Digestive problems
- ◇ Nerve disorders
- ◇ Memory and concentration problems
- ◇ Muscle and joint pain



Lead affects the body in many ways.

Where Lead-Based Paint Is Found

In general, the older your home, the more likely it has lead-based paint.

Many homes built before 1978 have lead-based paint. The federal government banned lead-based paint from housing in 1978. Some states stopped its use even earlier. Lead can be found:

- ◇ In homes in the city, country, or suburbs.
- ◇ In apartments, single-family homes, and both private and public housing.
- ◇ Inside *and* outside of the house.
- ◇ In soil around a home. (Soil can pick up lead from exterior paint or other sources such as past use of leaded gas in cars.)

Checking Your Family for Lead

Get your children and home tested if you think your home has high levels of lead.

To reduce your child's exposure to lead, get your child checked, have your home tested (especially if your home has paint in poor condition and was built before 1978), and fix any hazards you may have. Children's blood lead levels tend to increase rapidly from 6 to 12 months of age, and tend to peak at 18 to 24 months of age.

Consult your doctor for advice on testing your children. A simple blood test can detect high levels of lead. Blood tests are usually recommended for:

- ◇ Children at ages 1 and 2.
- ◇ Children or other family members who have been exposed to high levels of lead.
- ◇ Children who should be tested under your state or local health screening plan.

Your doctor can explain what the test results mean and if more testing will be needed.

Where Lead Is Likely To Be a Hazard

Lead-based paint that is in good condition is usually not a hazard.

Peeling, chipping, chalking, or cracking lead-based paint is a hazard and needs immediate attention.

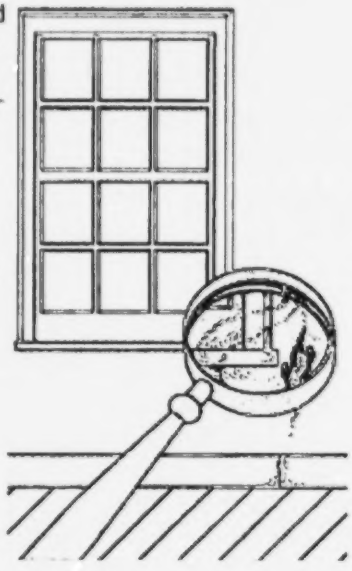
Lead-based paint may also be a hazard when found on surfaces that children can chew or that get a lot of wear-and-tear. These areas include:

- ◇ Windows and window sills.
- ◇ Doors and door frames.
- ◇ Stairs, railings, and banisters.
- ◇ Porches and fences.

Lead dust can form when lead-based paint is dry scraped, dry sanded, or heated. Dust also forms when painted surfaces bump or rub together. Lead chips and dust can get on surfaces and objects that people touch. Settled lead dust can re-enter the air when people vacuum, sweep, or walk through it.

Lead in soil can be a hazard when children play in bare soil or when people bring soil into the house on their shoes. Call your state agency (see page 11) to find out about testing soil for lead.

Lead from paint chips, which you can see, and lead dust, which you can't always see, can both be serious hazards.



Checking Your Home for Lead Hazards

Just knowing that a home has lead-based paint may not tell you if there is a hazard.

You can get your home checked for lead hazards in one of two ways, or both:

- ◇ A paint **inspection** tells you the lead content of every different type of painted surface in your home. It won't tell you whether the paint is a hazard or how you should deal with it.
- ◇ A **risk assessment** tells you if there are any sources of serious lead exposure (such as peeling paint and lead dust). It also tells you what actions to take to address these hazards.

Have qualified professionals do the work. *There are standards in place for certifying lead-based paint professionals to ensure the work is done safely, reliably, and effectively.* Contact your state lead poisoning prevention program for more information. Call 1-800-424-LEAD for a list of contacts in your area.

Trained professionals use a range of methods when checking your home, including:

- ◇ Visual inspection of paint condition and location.
- ◇ A portable x-ray fluorescence (XRF) machine.
- ◇ Lab tests of paint samples.
- ◇ Surface dust tests.

Home test kits for lead are available, but studies suggest that they are not always accurate. Consumers should not rely on these tests before doing renovations or to assure safety.

What You Can Do Now To Protect Your Family

If you suspect that your house has lead hazards, you can take some immediate steps to reduce your family's risk:

- ◇ **If you rent, notify your landlord of peeling or chipping paint.**
- ◇ **Clean up paint chips immediately.**
- ◇ **Clean floors, window frames, window sills, and other surfaces weekly.** Use a mop or sponge with warm water and a general all-purpose cleaner or a cleaner made specifically for lead. REMEMBER: NEVER MIX AMMONIA AND BLEACH PRODUCTS TOGETHER SINCE THEY CAN FORM A DANGEROUS GAS.

- ◇ **Thoroughly rinse sponges and mop heads after cleaning dirty or dusty areas.**
- ◇ **Wash children's hands often, especially before they eat and before nap time and bed time.**
- ◇ **Keep play areas clean.** Wash bottles, pacifiers, toys, and stuffed animals regularly.
- ◇ **Keep children from chewing window sills or other painted surfaces.**
- ◇ **Clean or remove shoes before entering your home to avoid tracking in lead from soil.**
- ◇ **Make sure children eat nutritious, low-fat meals high in iron and calcium,** such as spinach and dairy products. Children with good diets absorb less lead.

7

How To Significantly Reduce Lead Hazards

Removing lead improperly can increase the hazard to your family by spreading even more lead dust around the house.

Always use a professional who is trained to remove lead hazards safely.

In addition to day-to-day cleaning and good nutrition:

- ◇ You can **temporarily** reduce lead hazards by taking actions such as repairing damaged painted surfaces and planting grass to cover soil with high lead levels. These actions (called "interim controls") are not permanent solutions and will need ongoing attention.
- ◇ To **permanently** remove lead hazards, you must hire a certified lead "abatement" contractor. Abatement (or permanent hazard elimination) methods include removing, sealing, or enclosing lead-based paint with special materials. Just painting over the hazard with regular paint is not enough.

Always hire a person with special training for correcting lead problems—someone who knows how to do this work safely and has the proper equipment to clean up thoroughly. Certified contractors will employ qualified workers and follow strict safety rules as set by their state or by the federal government.

Call your state agency (see page 11) for help with locating certified contractors in your area and to see if financial assistance is available.

Remodeling or Renovating a Home With Lead-Based Paint

Take precautions before your contractor or you begin remodeling or renovations that disturb painted surfaces (such as scraping off paint or tearing out walls):

- ◇ **Have the area tested for lead-based paint.**
- ◇ **Do not use a belt-sander, propane torch, heat gun, dry scraper, or dry sandpaper** to remove lead-based paint. These actions create large amounts of lead dust and fumes. Lead dust can remain in your home long after the work is done.
- ◇ **Temporarily move your family** (especially children and pregnant women) out of the apartment or house until the work is done and the area is properly cleaned. If you can't move your family, at least completely seal off the work area.
- ◇ **Follow other safety measures to reduce lead hazards.** You can find out about other safety measures by calling 1-800-424-LEAD. Ask for the brochure "Reducing Lead Hazards When Remodeling Your Home." This brochure explains what to do before, during, and after renovations.

If not conducted properly, certain types of renovations can release lead from paint and dust into the air.

If you have already completed renovations or remodeling that could have released lead-based paint or dust, get your young children tested and follow the steps outlined on page 7 of this brochure.

Other Sources of Lead

While paint, dust, and soil are the most common lead hazards, other lead sources also exist.

◇ **Drinking water.** Your home might have plumbing with lead or lead solder. Call your local health department or water supplier to find out about testing your water. You cannot see, smell, or taste lead, and boiling your water will not get rid of lead. If you think your plumbing might have lead in it:

- Use only cold water for drinking and cooking.
- Run water for 15 to 30 seconds before drinking it, especially if you have not used your water for a few hours.

◇ **The job.** If you work with lead, you could bring it home on your hands or clothes. Shower and change clothes before coming home. Launder your work clothes separately from the rest of your family's clothes.

◇ Old painted **toys** and **furniture.**

◇ Food and liquids stored in **lead crystal** or **lead-glazed pottery or porcelain.**

◇ **Lead smelters** or other industries that release lead into the air.

◇ **Hobbies** that use lead, such as making pottery or stained glass, or refinishing furniture.

◇ **Folk remedies** that contain lead, such as "greta" and "azarcon" used to treat an upset stomach.

For More Information

The National Lead Information Center

Call **1-800-424-LEAD** to learn how to protect children from lead poisoning and for other information on lead hazards. (Internet: **www.epa.gov/lead** and **www.hud.gov/lea**).

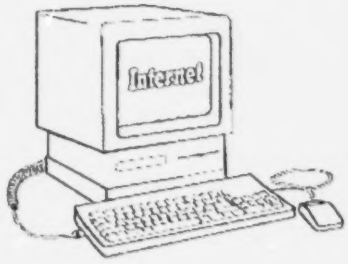
For the hearing impaired, call the Federal Information Relay Service at **1-800-877-8339** and ask for the National Lead Information Center at **1-800-424-LEAD.**

EPA's Safe Drinking Water Hotline

Call **1-800-426-4791** for information about lead in drinking water.

Consumer Product Safety Commission Hotline

To request information on lead in consumer products, or to report an unsafe consumer product or a product-related injury call **1-800-638-2772.** (Internet: www@cpsc.gov). For the hearing impaired, call **TDD 1-800-638-8270.**



State Health and Environmental Agencies

Some cities and states have their own rules for lead-based paint activities. Check with your state agency to see if state or local laws apply to you. Most state agencies can also provide information on finding a lead abatement firm in your area, and on possible sources of financial aid for reducing lead hazards. Receive up-to-date address and phone information for state and local contacts on the Internet at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD.**

EPA Regional Offices

Your Regional EPA Office can provide further information regarding regulations and lead protection programs.

EPA Regional Offices

Region 1 (Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)

Regional Lead Contact
U.S. EPA Region 1
Suite 1100 (CPT)
One Congress Street
Boston, MA 02114-2023
1 (888) 372-7341

Region 2 (New Jersey, New York, Puerto Rico, Virgin Islands)

Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 209, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3 (Delaware, Washington DC, Maryland, Pennsylvania, Virginia, West Virginia)

Regional Lead Contact
U.S. EPA Region 3 (3WC33)
1650 Arch Street
Philadelphia, PA 19103
(215) 814-5000

Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)

Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
(404) 562-8998

Region 5 (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)

Regional Lead Contact
U.S. EPA Region 5 (DT-8J)
77 West Jackson Boulevard
Chicago, IL 60604-3666
(312) 886-6003

Region 6 (Arkansas, Louisiana, New Mexico, Oklahoma, Texas)

Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue, 12th Floor
Dallas, TX 75202-2733
(214) 665-7577

Region 7 (Iowa, Kansas, Missouri, Nebraska)

Regional Lead Contact
U.S. EPA Region 7
(ARTD-RALI)
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7020

Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)

Regional Lead Contact
U.S. EPA Region 8
999 18th Street, Suite 500
Denver, CO 80202-2466
(303) 312-6021

Region 9 (Arizona, California, Hawaii, Nevada)

Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 744-1124

Region 10 (Idaho, Oregon, Washington, Alaska)

Regional Lead Contact
U.S. EPA Region 10
Toxics Section WCM-128
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1985

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CPSC Regional Offices

Your Regional CPSC Office can provide further information regarding regulations and consumer product safety.

Eastern Regional Center
6 World Trade Center
Vesey Street, Room 350
New York, NY 10048
(212) 466-1612

Central Regional Center
230 South Dearborn Street
Room 2944
Chicago, IL 60604-1601
(312) 353-8260

Western Regional Center
600 Harrison Street, Room 245
San Francisco, CA 94107
(415) 744-2966

HUD Lead Office

Please contact HUD's Office of Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control and research grant programs.

U.S. Department of Housing and Urban Development
Office of Lead Hazard Control
451 Seventh Street, SW, P-3206
Washington, DC 20410
(202) 755-1785

Simple Steps To Protect Your Family From Lead Hazards

If you think your home has high levels of lead:

- Get your young children tested for lead, even if they seem healthy.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat healthy, low-fat foods.
- Get your home checked for lead hazards.
- Regularly clean floors, window sills, and other surfaces.
- Wipe soil off shoes before entering house.
- Talk to your landlord about fixing surfaces with peeling or chipping paint.
- Take precautions to avoid exposure to lead dust when remodeling or renovating (call 1-800-424-LEAD for guidelines).
- Don't use a belt-sander, propane torch, heat gun, dry scraper, or dry sandpaper on painted surfaces that may contain lead.
- Don't try to remove lead-based paint yourself.

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40 CFR Part 745:
Lead-Based Paint Hazards

among young children by supporting the implementation of the national lead program. Because exposure to lead in paint, dust, and soil is mostly limited to children under the age of 6, young children are, in fact, the primary beneficiaries of this proposed rule, as well as the program.

G. National Technology Transfer and Advancement Act

This proposed regulatory action does not involve any technical standards that would require Agency consideration of voluntary consensus standards pursuant to section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Pub. L. 104-113, section 12(d) (15 U.S.C. 272 note). Section 12(d) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, business practices, etc.) that are developed or adopted by voluntary consensus standards bodies. The NTTAA requires EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards. EPA invites public comment on this conclusion.

List of Subjects in Part 745

Environmental protection, Hazardous substances, Lead-based paint, Lead poisoning, Reporting and recordkeeping requirements.

Dated: May 26, 1998.

Carol M. Browner,

Administrator.

Therefore, it is proposed that 40 CFR part 745 be amended as follows:

PART 745—[AMENDED]

1. The authority citation for part 745 continues to read as follows:

Authority: 15 U.S.C. 2605, 2607, 2615, 2681-2692 and U.S.C. 4852d.

2. By adding new subpart D to read as follows:

Subpart D—Lead-Based Paint Hazards

Sec.

745.61 Scope and applicability.
745.63 Definitions.
745.65 Lead-based paint hazards.
745.69 Determining whether lead-based paint hazards are present.

Subpart D—Lead-Based Paint Hazards

§ 745.61 Scope and applicability.

(a) This subpart identifies lead-based paint hazards.

(b) The standards for lead-based paint hazards apply to target housing and child-occupied facilities.

(c) Nothing in this subpart requires any person to evaluate the property(ies) for the presence of lead-based paint hazards or to take any action to control these conditions if one or more of them is identified.

§ 745.63 Definitions.

The following definitions apply to this subpart.

Arithmetic mean means the algebraic sum of data values divided by the number of data values (e.g., the sum of the concentration of lead in several soil samples divided by the number of samples).

Certified risk assessor means an individual who has been trained by an accredited training program, as defined by § 745.223, and certified by EPA pursuant to § 745.226 or by an authorized State or Tribal program to conduct risk assessments. A certified risk assessor also samples for the presence of lead in dust and soil for the purposes of abatement clearance testing.

Child-occupied facility means a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day-care centers, preschools, and kindergarten classrooms.

Deteriorated paint means paint that is cracking, flaking, chipping, peeling, or otherwise separating from the substrate of a building component.

Interior window sill means the portion of the horizontal window ledge that protrudes into the interior of the room.

Lead-based paint means paint or other surface coatings that contain lead equal to or exceeding 1.0 milligram per square centimeter or 0.5 percent by weight.

Lead-based paint hazard means hazardous lead-based paint, a dust-lead hazard, or a soil-lead hazard as described in § 745.65.

Paint in poor condition means more than 10 square feet of deteriorated paint on exterior components with large surface areas; or more than 2 square feet of deteriorated paint on interior components with large surface areas (e.g., walls, ceilings, floors, doors); or more than 10 percent of the total surface area of the component is deteriorated on interior or exterior components with small surface areas (e.g., window sills, baseboards, soffits, trim).

Risk assessment means an on-site investigation to determine the existence, nature, severity, and location of lead-based paint hazards, and the provision of a report by the individual or the firm conducting the risk assessment, explaining the results of the investigation and options for reducing lead-based paint hazards.

Target housing means any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any one or more children age 6 years or under resides or is expected to reside in such housing for the elderly or persons with disabilities) or any 0-bedroom dwelling.

Weighted arithmetic mean means the arithmetic mean of sample results weighted by the number of subsamples in each sample. Its purpose is to give influence to a sample relative to the number of subsamples it contains. A single surface sample is comprised of a single subsample. A composite sample may contain from two to four subsamples. The weighted arithmetic mean is obtained by summing for all samples, the product of the sample's result multiplied by the number of subsamples in the sample, and dividing the sum by the total number of subsamples contained in all samples. For example, the weighted arithmetic mean of a single surface sample containing 60 $\mu g/ft^2$, a composite sample (3 subsamples) containing 100 $\mu g/ft^2$, and a composite sample (4 subsamples) containing 110 $\mu g/ft^2$ is 100 $\mu g/ft^2$. This result is based on the equation $[60+(3*100)+(4*110)]/8$.

Wipe sample means a sample collected by wiping a representative surface of known area with an acceptable wipe material (e.g., moist towelette).

§ 745.65 Lead-based paint hazards.

(a) *Hazardous lead-based paint.* Hazardous lead-based paint is lead-based paint in poor condition.

(b) *Dust-lead hazard.* A dust-lead hazard is dust that contains lead equal to or exceeding 50 $\mu g/ft^2$ on uncarpeted floors or 250 $\mu g/ft^2$ on interior window sills based on wipe samples.

(c) *Soil-lead hazard.* A soil-lead hazard is bare soil that contains total lead equal to or exceeding 2,000 parts per million.

The Lead-Based Paint Pre-Renovation Education Rule

The Lead Pre-Renovation Education Rule (Lead PRE) At-A-Glance

If you will be working for ***compensation*** *in a pre-1978 home or apartment building, answer the questions below to determine if Lead PRE requires you to give the* ***lead pamphlet*** *to the* ***owner*** *and occupants.*

Does this job involve **renovations** which disturb painted surfaces?

NO → **Lead PRE Does Not Apply**

YES ↓

Are ANY of the following conditions present?

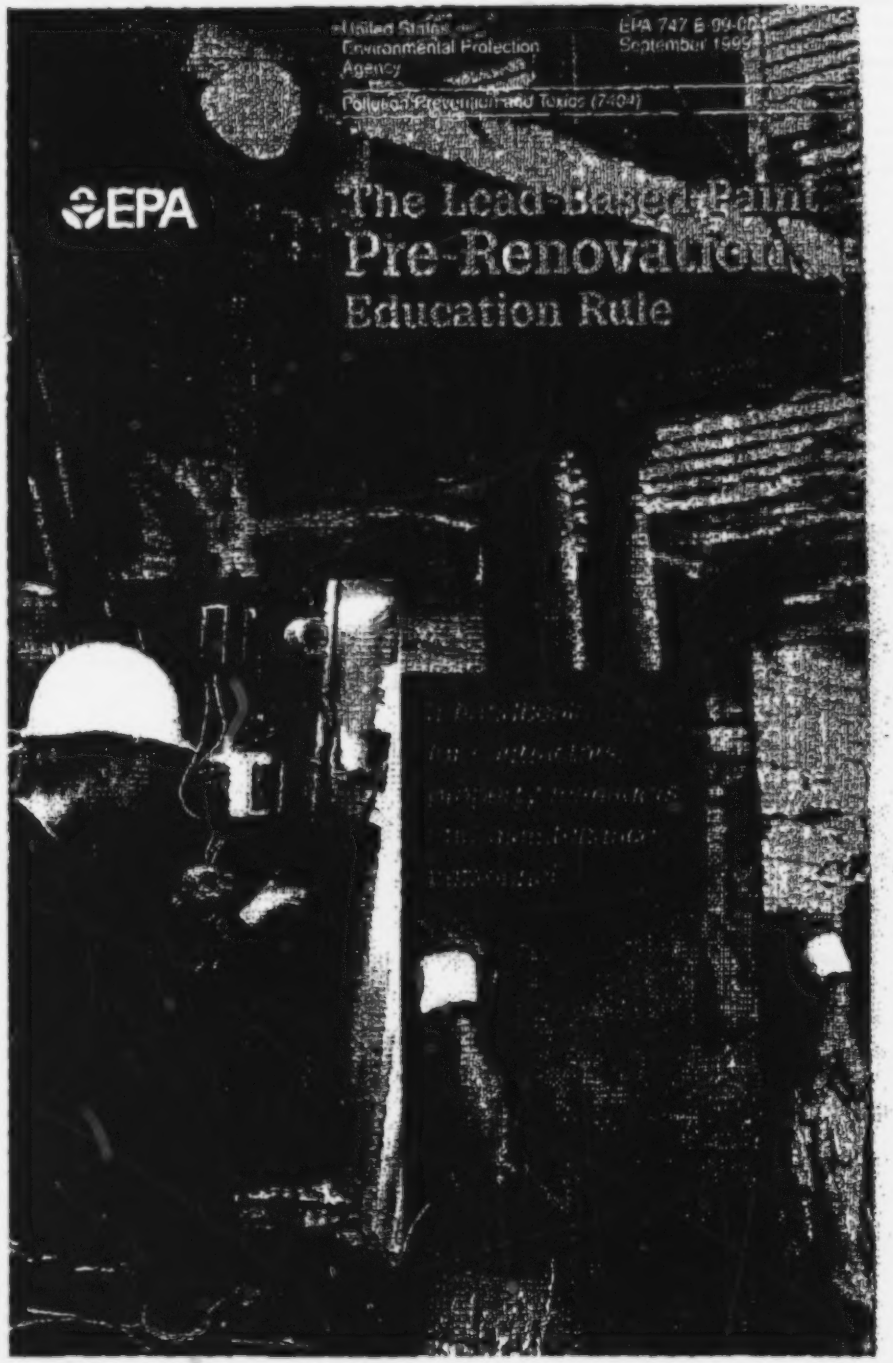
- The work is an ***emergency renovation***
- The work is a ***lead abatement*** project
- The work consists of **minor repairs or maintenance** that disturbs 2 square feet or less of painted surfaces
- The housing or its **components** have been determined to be lead-based paint free by a **certified inspector** or ***risk assessor***
- The housing is a ***zero-bedroom dwelling*** (studio apartments, dormitories, etc.)
- The housing is **housing for the elderly** or disabled AND children are not expected to reside there

YES → **Lead PRE Does Not Apply** *If Any Yes*

NO *If All No*

If no, then you need to read this book! Rental property owners and managers, renovators, and maintenance personnel are affected by Lead PRE.

Bold Type – Key Terms (see pages 8–10 inside)



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What Is The Lead-Based Paint Pre-Renovation Education Rule (Lead PRE)?

- The Lead PRE Rule is a Federal regulation affecting construction contractors, property managers, and others who perform **renovations** for **compensation** in residential housing that may contain lead-based paint.
- It applies to residential houses and apartments built before 1978.
- It requires distribution of the **lead pamphlet**, *Protect Your Family from Lead in Your Home*, to the owners and occupants before starting **renovation** work.
- **Renovation** includes most repair, remodeling, and maintenance activities that disturb painted surfaces.
- Lead PRE implements Section 406(b) of the Toxic Substances Control Act (TCSA).

About This Handbook

- This handbook summarizes Lead PRE and how to comply with it. To ensure compliance, you should also read the rule.
- Key terms are highlighted in **bold** and are explained on pages 8-10.

Who Should Read This Handbook?

- Anyone who owns or manages housing built before 1978.
- Contractors who perform **renovations** (including certain repairs and maintenance) which disturb paint in homes built before 1978.

How Can This Handbook Help Me?

- This handbook presents simple steps to follow to comply with Lead PRE. It also lists ways these steps can be easily incorporated into your work.
- Having demonstrated knowledge of lead requirements and safety practices can mean more business for you.
- Distributing the **lead pamphlet** to your customers and tenants can help them protect themselves and their children from the hazards of lead-based paint.
- This handbook describes the law. It also explains the proper steps to take to avoid potentially significant civil (monetary) and criminal fines and penalties.

Where Can I Get Copies of the **Lead Pamphlet?**

For single copies of *Protect Your Family From Lead in Your Home* (in Spanish or English), call the National Lead Information Clearinghouse (NLIC) at 1-800-424-LEAD. For any orders, be sure to use the stock reference number **EPA747-K-99-001**.

There are four ways to get multiple copies:

1. **Call the Government Printing Office order desk at (202) 512-1800.**
2. **Send fax requests to (202) 512-2233.**
3. **Request copies in writing from:**
   Superintendent of Documents
   P.O. Box 371954
   Pittsburgh, PA 15250-7954
4. **Obtain via the Internet at www.epa.gov/lead**

Single copies are available at no charge. Bulk copies available in packs of 50.

The pamphlet may be photocopied for distribution as long as the text and graphics are readable. Camera-ready copies are available from NLIC or via the Internet.

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Sample Forms (continued)

Renovation Notice — *For use in notifying tenants of renovations in common areas of multi-family housing.*

The following renovation activities will take place in the following locations:

Activity *(e.g., sanding, window replacement)*

Location *(e.g., lobby, recreation center)*

The expected starting date is _____ and the expected ending date is _____. Because this is an older building built before 1978, some of the paint disturbed during the renovation may contain lead. You may obtain a copy of the pamphlet, *Protect Your Family From Lead in Your Home*, by telephoning me at _____. Please leave a message and be sure to include your name, phone number and address. I will either mail you a pamphlet or slide one under your door.

Date

Printed name of renovator

Signature of renovator

Record of Tenant Notification Procedures — *Procedures Used For Delivering Notices to Tenants of Renovations in Common Areas*

Project Address:

Street (apt. #)

City State Zip Code

Owner of multi-family housing Number of dwelling units

Method of delivering notice forms (e.g. delivery to units, delivery to mailboxes of units)

Name of person delivering notices

Signature of person delivering notices Date of Delivery

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What Does Lead PRE Require Me To Do?

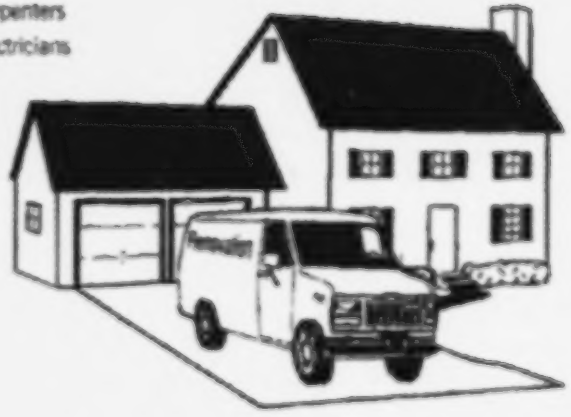
1. Distribute a **lead pamphlet** to the housing **owner** and occupants before **renovation** starts.
2. Obtain **confirmation of receipt of lead pamphlet** (see page 11) from owner and occupants or a **certificate of mailing** from the post office.
3. For work in **common areas** of **multi-family housing**, distribute **renovation notices** to tenants.
4. Retain records for 3 years.

(See page 4 for more details)

Who Must Follow These Requirements?

In general, anyone whose compensated work disturbs paint in housing built before 1978, including:

- Residential rental property owners/managers
- **General contractors**
- **Special trade contractors**, including
  - Painters
  - Plumbers
  - Carpenters
  - Electricians

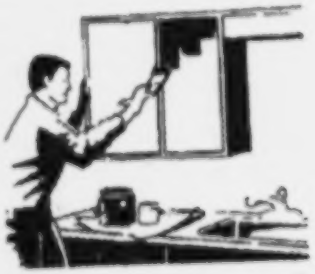


Bold Type = **Key Terms (see pages 8–10)**

What Types Of Activities Are Subject To Lead PRE?

In general, any activity that disturbs paint in pre-1978 housing, including:

- Remodeling and repair/maintenance
- Plumbing
- Carpentry
- Electrical work
- Painting
- Window replacement



What Housing Or Activities Are Excluded From Lead PRE?

- Housing built in 1978 or later
- **Housing for the elderly** or disabled persons (unless children will reside there)
- **Zero-bedroom dwellings** (studio apartment, dormitories, etc.)
- Housing or **components** declared lead-free by a **certified inspector** or **risk assessor**
- **Emergency renovations** and repairs
- **Minor repairs and maintenance** that disturb two square feet or less of paint per **component**

Sample Forms

The forms on the next two pages are sample forms you can use to make documentation of compliance easier.

Confirmation of Receipt of Lead Pamphlet

I have received a copy of the pamphlet, *Protect Your Family From Lead in Your Home*, informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed name of recipient _____ Date _____

Signature of recipient _____

Self-Certification Option (for tenant-occupied dwellings only) — *If the lead pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.*

☐ **Refusal to sign** — I certify that I have made a good faith effort to deliver the pamphlet, *Protect your Family From Lead in Your Home*, to the rental dwelling unit listed below at the date and time indicated and that the occupant refused to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

☐ **Unavailable for signature** — I certify that I have made a good faith effort to deliver the pamphlet, *Protect Your Family From Lead In Your Home*, to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door.

Printed name of person certifying lead pamphlet delivery _____ Attempted delivery date and time _____

Signature of person certifying lead pamphlet delivery _____

_____

Unit Address

Note Regarding Mailing Option — *As an alternative to delivery in person, you may mail the lead pamphlet to the owner and/or tenant. Pamphlet must be mailed at least 7 days before renovation (Document with a certificate of mailing from the post office).*

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Key Terms (continued)

Renovation — modification of all or part of any existing structure in housing that disturbs a painted surface. Includes:

- Removal/modification of painted surfaces, components, or structures
- Surface preparation activities (sanding/scraping/other activities that may create paint dust)
- Window replacement

Examples *1: Demolition of painted walls or ceilings*
2: Large surface replastering
3: Major plumbing repairs or improvements
4: Any other activities which disturb painted surfaces

Renovation Notice — notice to tenants of renovations in common areas of multifamily housing. *(See sample form on page 12.)* Notice must describe nature, location, and expected timing of renovation activity; and must explain how the lead pamphlet may be obtained free of charge.

Renovator — a person who performs for compensation a renovation, as defined above. ***(Note:*** *Because the term "renovation" is defined broadly by Lead PRE, many contractors who are not generally considered to "renovators," as that term is commonly used, are considered to be "renovators" under Lead PRE, and must follow Lead PRE requirements.)*

Self-Certification of Delivery — an alternative method of documenting delivery of the lead pamphlet to a tenant. This method may be used whenever the tenant is unavailable or unwilling to sign a confirmation of receipt of lead pamphlet. *(See sample form on page 11.)* ***(Note:*** *This method is not a permissible substitute for documenting delivery of the lead pamphlet to an owner.)*

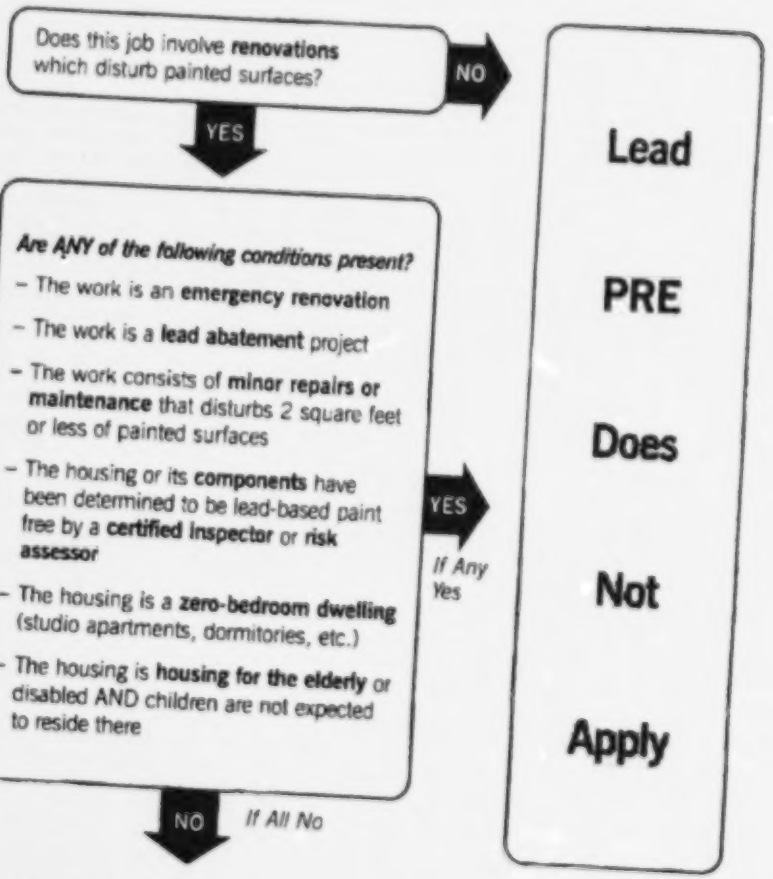
Special Trade Contractors — individuals or companies performing work in specialized occupations such as painting, electrical work, plumbing, or carpentry.

Supplemental Renovation Notice — additional notification that is required when the scope, location, or timing of project changes.

Zero-Bedroom Dwelling — any residential dwelling where the living area is not separated from the sleeping area. This term includes efficiency and studio apartments, dormitory housing, and military barracks.

Lead PRE At-A-Glance

If you will be working for **compensation** in a pre-1978 home or apartment building, answer the questions below to determine if Lead PRE requires you to give the **lead pamphlet** to the **owner** and occupants.


Does this job involve **renovations** which disturb painted surfaces?
NO
YES
Are ANY of the following conditions present?
- The work is an **emergency renovation**
- The work is a **lead abatement** project
- The work consists of **minor repairs or maintenance** that disturbs 2 square feet or less of painted surfaces
- The housing or its **components** have been determined to be lead-based paint free by a **certified inspector** or **risk assessor**
- The housing is a **zero-bedroom dwelling** (studio apartments, dormitories, etc.)
- The housing is **housing for the elderly** or disabled AND children are not expected to reside there
YES
If Any Yes
NO
If All No
Lead PRE Does Not Apply

If no, then you need to provide the lead pamphlet (see page 4).

Bold Type = Key Terms (see pages 8–10)

How Do I Meet The Lead PRE Requirements?

Renovation Location	Procedures to Follow
Renovations in Owner-Occupied Dwelling Units	Box 1 Deliver **lead pamphlet** to **owner** before **renovation** begins and obtain **confirmation of receipt**. *(sample form on page 11).* **OR** Mail lead pamphlet to owner 7 days before renovation begins and document with **certificate of mailing**
Renovations in Tenant-Occupied Dwelling Units	Box 2 1. Provide **lead pamphlet** to **owner** using either procedure described in Box 1 above. 2. Provide lead pamphlet to tenant by either method below: (a) Deliver pamphlet to dwelling unit before **renovation** begins and document delivery with either a **confirmation of receipt** of lead pamphlet or a **self-certification of delivery** *(sample form on page 11).* **OR** (b) Mail lead pamphlet to tenant at least 7 days prior to renovation and document with a **certificate of mailing**
Renovations in Common Areas of Multi-Family Housing Units	Box 3 1. Provide **owner** with **lead pamphlet** using either procedure described in Box 1 above. 2. Notify tenants and make pamphlet available. 3. Maintain written documentation describing notification procedures. 4. Provide **supplemental renovation notice** if changes occur in location, timing, or scope of renovation occurring.

For all options keep records for 3 years after renovation is completed. (Sample Forms on pages 11 and 12.)

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Key Terms (continued)

Emergency Renovation — unplanned renovation activities done in response to a sudden, unexpected event which, if not immediately attended to presents a safety or public health hazard, or threatens property with significant damage.

Examples *1: Renovation to repair damage from a tree that fell on a house*
2: Renovation to repair a water pipe break in an apartment complex

General Contractor — one who contracts for the construction of an entire building or project, rather than for a portion of the work. The general contractor hires subcontractors (e.g. plumbing, electrical, etc.), coordinates all work, and is responsible for payment to subcontractors.

Housing for the Elderly — retirement communities or similar types of housing specifically reserved for households of one or more persons 62 years of age or older at the time the unit is first occupied.

Lead Abatement — work designed to permanently eliminate lead-based paint hazards. If you are hired to do lead-abatement work only, Lead PRE does not apply. Abatement does not include renovation, remodeling, landscaping, or other activities done to repair, restore, or redesign a given building - even if these activities incidentally reduce lead-based paint hazards. ***(Note:*** *Some states define this term differently than described above. Consult your state officials if you are not sure how "lead abatement" is defined in your state.)*

Lead Pamphlet -- the pamphlet *Protecting Your Family From Lead in Your Home*, or an EPA-approved alternative pamphlet. *(See page 13 for information on obtaining copies.)*

Minor Repair and Maintenance — minor repair and maintenance activities, such as minor electrical work or plumbing, that disturb two square feet or less of painted surface per component.

Examples *1: Drilling holes in the wall to run an electrical line*
2: Replacing a piece of window trim
3: Replacing a light fixture

Multi-family Housing — housing property consisting of more than four dwelling units.

Owner — any person or entity that has legal title to housing, including individuals, partnerships, corporations, government agencies, Indian Tribes, and nonprofit organizations.

Record of Notification — written statement documenting the steps taken to notify occupants of renovation activities in common areas of multi-family housing. *(See page 12 for sample.)*

Key Terms

Certificate of Mailing — written verification from the Postal Service that you mailed the lead pamphlet to an owner or a tenant. This is less expensive than certified mail, which is also acceptable for meeting Lead PRE requirements. *(**Note:** If using this delivery option, you must mail the pamphlet at least 7 days prior to the start of renovation.)*

Certified Inspector or Risk Assessor — an individual who has been trained and is certified by EPA or an authorized state or Indian Tribe to conduct lead-based paint inspections or risk assessments.

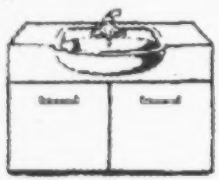
Common Area — a portion of a building that is generally accessible to all residents or users. Common areas include (but are not limited to) hallways, stairways, laundry rooms, recreational rooms, playgrounds, community centers, and fenced areas. The term applies to both interiors and exteriors of the building. *(**Note:** Lead PRE requirements related to common areas apply only to multi-family housing.)*

Compensation — payment or goods for services rendered. Payment can be in the form of money, goods, or services (bartering).

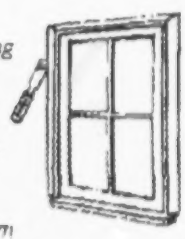
Component — specific design or structural element or fixture distinguished by its form, function, and location. A component can be located inside or outside the dwelling.

Examples

Interiors
Ceilings
Crown molding
Walls
Doors and trim
Floors
Fireplaces
Radiators
Shelves
Stair treads
Windows and trim
Built-in cabinets
Beams
Bathroom vanities
Counter tops
Air conditioners



Exterior
Painted roofing
Chimneys
Flashing
Gutters and downspouts
Ceilings
Soffits
Doors and trim
Fences
Floors
Joists
Handrails
Window sills and sashes
Air conditioners



Confirmation of Receipt of Lead Pamphlet — a form that is signed by the owner or tenant of the housing confirming that they received a copy of the lead pamphlet before the renovation began. *(See sample on page 11.)*

Special Circumstances

Is painting considered renovation, even if no surface preparation activity occurs?

No. If the surface to be painted is not disturbed by sanding, scraping, or other activities that may cause dust, the work is not considered renovation and Lead PRE does *not* apply.

What if I renovate my own home?

Lead PRE applies only to **renovations** performed for **compensation**; therefore, if you work on your own home Lead PRE does not apply.

Is a renovation performed by a landlord or employees of a property management firm considered a compensated renovation under Lead PRE?

Yes. The receipt of rent payments or salaries derived from rent payments is considered **compensation** under Lead PRE. Therefore, **renovation** activities performed by landlords or employees of landlords are covered.

Do I have to give out the lead pamphlet 7 days prior to beginning renovation activities?

The 7-day advance delivery requirement applies only when you deliver the **lead pamphlet** via mail; otherwise, you may deliver the pamphlet *anytime* before the **renovation** begins. Note, however, that the renovation must begin within 60 days of the date that the pamphlet is delivered. So for example, if your renovation is to begin May 30, you may deliver the pamphlet in person anytime between April 1 and start of the project on May 30, or you may deliver the pamphlet via mail anytime between April 1 and May 23.

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Tips For Easy Compliance

1. Copy and use the sample forms on pages 11 and 12 of this handbook.
2. Attach the forms to the back of your customer **renovation** or repair contracts. The completed forms can be filed along with your regular paperwork.
3. If a tenant is not home or refuses to sign the form, you may use the "self-certification" section of the form *(on page 11)* to prove delivery. This will reduce your paperwork.
4. Plan ahead to obtain enough copies of the **lead pamphlet**.

Where Can I Obtain More Information on Lead PRE?

Further information is available from the National Lead Information Clearinghouse (800-424-LEAD) or through the Internet (www.epa.gov/lead). Available resources include:

- Full text version of Lead PRE
- Interactive software which guides the users through the Lead PRE requirements on a step by step basis
- Interpretive guidance which provides more detailed information on Lead PRE requirements

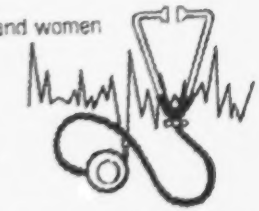
Why is Lead Paint Dangerous?

People can ingest lead by breathing or swallowing lead-based paint dust or by eating lead-contaminated soil or lead-based paint chips. Household animals are also at risk.

If not detected early, high levels of lead in a child can cause serious effects, including:

- Damage to the brain and nervous system
- Behavior and learning problems
- Slowed growth
- Hearing problems
- Headaches

Lead is also harmful to adults and can, among other effects, cause:



- Difficulties during pregnancy
- Other reproductive problems for men and women
- High blood pressure
- Digestive problems
- Nerve disorders
- Memory and concentration problems
- Muscle and joint pain

Lead can be dangerous to workers and their families if the worker brings equipment and clothing home after a job.

Other Resources

For additional information on how to protect yourself and your customers from lead paint hazards, call the National Lead Information Clearinghouse at 1-800-424 LEAD. Available documents include:

- *Lead-Based Paint: Operations and Maintenance Work Practices Manual for Homes and Buildings*
- *Lead Safety for Property Owners, Developers, and Managers*
- *Reducing Lead Hazards When Remodeling Your Home*
- *Lead in Your Home: A Parents' Reference Guide*
- *Lead Paint Safety: A Field Guide for Painting, Home Maintenance, and Renovation Work*

Bold Type = Key Terms (see pages 8-10)

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Disclosure Forms on Lead-Based Paint and/or Lead-Based Paint Hazards

Disclosure of Information on Lead-Based Paint and/or Lead-Based Paint Hazards

Lead Warning Statement

Housing built before 1978 may contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Lead exposure is especially harmful to young children and pregnant women. Before renting pre-1978 housing, lessors must disclose the presence of known lead-based paint and/or lead-based paint hazards in the dwelling. Lessees must also receive a federally approved pamphlet on lead poisoning prevention.

Lessor's Disclosure

(a) Presence of lead-based paint and/or lead-based paint hazards (check (i) or (ii) below):

(i) _____ Known lead-based paint and/or lead-based paint hazards are present in the housing (explain).

_____

_____

(ii) _____ Lessor has no knowledge of lead-based paint and/or lead-based paint hazards in the housing.

(b) Records and reports available to the lessor (check (i) or (ii) below):

(i) _____ Lessor has provided the lessee with all available records and reports pertaining to lead-based paint and/or lead-based paint hazards in the housing (list documents below).

_____

_____

(ii) _____ Lessor has no reports or records pertaining to lead-based paint and/or lead-based paint hazards in the housing.

Lessee's Acknowledgment (initial)

(c) _____ Lessee has received copies of all information listed above.

(d) _____ Lessee has received the pamphlet *Protect Your Family from Lead in Your Home.*

Agent's Acknowledgment (initial)

(e) _____ Agent has informed the lessor of the lessor's obligations under 42 U.S.C. 4852(d) and is aware of his/her responsibility to ensure compliance.

Certification of Accuracy

The following parties have reviewed the information above and certify, to the best of their knowledge, that the information they have provided is true and accurate.

Lessor	Date	Lessor	Date
Lessee	Date	Lessee	Date
Agent	Date	Agent	Date

Disclosure of Information on Lead-Based Paint and/or Lead-Based Paint Hazards

Lead Warning Statement

Every purchaser of any interest in residential real property on which a residential dwelling was built prior to 1978 is notified that such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems, and impaired memory. Lead poisoning also poses a particular risk to pregnant women. The seller of any interest in residential real property is required to provide the buyer with any information on lead-based paint hazards from risk assessments or inspections in the seller's possession and notify the buyer of any known lead-based paint hazards. A risk assessment or inspection for possible lead-based paint hazards is recommended prior to purchase.

Seller's Disclosure

(a) Presence of lead-based paint and/or lead-based paint hazards (check (i) or (ii) below):

(i) _____ Known lead-based paint and/or lead-based paint hazards are present in the housing (explain).

_____

(ii) _____ Seller has no knowledge of lead-based paint and/or lead-based paint hazards in the housing.

(b) Records and reports available to the seller (check (i) or (ii) below):

(i) _____ Seller has provided the purchaser with all available records and reports pertaining to lead-based paint and/or lead-based paint hazards in the housing (list documents below).

_____

(ii) _____ Seller has no reports or records pertaining to lead-based paint and/or lead-based paint hazards in the housing.

Purchaser's Acknowledgment (initial)

(c) _____ Purchaser has received copies of all information listed above.

(d) _____ Purchaser has received the pamphlet *Protect Your Family from Lead in Your Home.*

(e) Purchaser has (check (i) or (ii) below):

(i) _____ received a 10-day opportunity (or mutually agreed upon period) to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards; or

(ii) _____ waived the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards.

Agent's Acknowledgment (initial)

(f) _____ Agent has informed the seller of the seller's obligations under 42 U.S.C. 4852(d) and is aware of his/her responsibility to ensure compliance.

Certification of Accuracy

The following parties have reviewed the information above and certify, to the best of their knowledge, that the information they have provided is true and accurate.

Seller	Date	Seller	Date
Purchaser	Date	Purchaser	Date
Agent	Date	Agent	Date

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

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